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Colonoscopic and histopathological finding among adults attendant to Al Hussein teaching hospital colonoscopic centre

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Article History:	ABSTRACT

Colonoscopy is a preventive, diagnostic, therapeutic safe procedure. Its results influence a patient's life and outcome. To estimate the extent and main determinants of abnormal colonoscopic finding among adults attended to colonoscopic centre and assessed the validity of colonoscopy of clinical and pathological findings of colonoscopy. Statistical Package for Social Sciences (SPSS) version 23 was used for data analysis. Chi-Square test, and binary logistic regression analysis P value (0.05) was a cut-off point for measuring statistical association where less than (0.05) had a significant statistical association. the colonoscopic findings were as follow the normal (42.7%), internal hemorrhoid (27.5%), nonspecific inflammation (12.9%), polyp (11.2%), inflammatory bowel disease (3.9%), colorectal cancer (3.4%), and other diseases (3.9%) Some patients had more than one abnormality. The histopathological result of colonoscopic biopsies which were as follow non- specific inflammation (64.2%), colorectal cancer (15.4%), and inflammatory bowel disease and polyp the same percent (10.2%). There was a significant statistical association between age groups and specific diseases. Bleeding per-rectum is a pig predictor sign of lower gastrointestinal problems, and it is the mean cause of referral. According to site of the lesion: colonic polyp (45%), sigmoid polyp (30%), and rectal polyp (25%). While the distribution of carcinoma according to the site of location. Carcinoma of sigmoid (50%), carcinoma of colon (33.3%), and carcinoma of rectal (16%). Sigmoid represent the most common site of occurrence of carcinoma. The sensitivity of colonoscopy 100% while the specificity was 50%. Colonoscopy is 100% sensitive in diagnosis lower GIT problems. The most common cause of referral was bleeding per-rectum, and the most abnormal finding was an internal haemorrhoid

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INTRODUCTION

Colonoscopy Is a medical procedure where a colonoscope inserted through the rectum to view the entire inner lining of the colon and rectum (EOLD, 2018; MFD, 2016; Collins dictionary, 2010; Marks, 2018). This procedure is done by a trained gastroenterologist. This procedure done for many purposes like Preventative colonoscopy (screening diagnosis) : that done for asymptomatic patient, age (50) years and more, he had no, personal or family history of gastrointestinal disease, no colon polyp and-or cancer and he not undergone a colonoscopy within the last (10) years, Surveillance (high risk

screening colonoscopy) : that done for patient with no, current gastrointestinal symptoms, but has personal history of gastrointestinal disease, personal and- or family history of cancer, and or colon polyp — that patient required colonoscopy surveillance at shortened intervals (2-5years) and diagnostic (therapeutic colonoscopy) : that done for patient with past and-or present gastrointestinal symptoms, polyps, gastrointestinal disease, iron deficiency anemia, and-or any other abnormal tests (GAE, 2018).

For clinical evaluation of the colonoscopy (Gatsonis, 2012).

- Does the test accurate in detection and characterisation of abnormalities, the response to the therapy and long-term patient outcomes?
- Does the test outcome influence therapeutic intervention and subsequent diagnostic workup?
- Does the test influence patient morbidity and mortality?

So by applying these questions on the findings of colonoscopy they can evaluate the colonoscopy examination. There are many indications for colonoscopy.

One of the most important indications for it is bleeding per rectum that is considered a medical emergency and life-threatening condition which needs urgent interference so proper diagnosis and management can save patient life early diagnosis of some diseases can improve the outcome of these diseases (Jehangiri *et al.,* 2017; Ghassemi *et al.,* 2013) "Which represent 20 to27 episode per100000 persons annually for acute massive bleeding, with a mortality rate of 4 to 10 % that increase in patients with advancing age and increasing number of associated underlying co-morbidities" (Linda *et al.,* 2005). Another important indication for colonoscopy is colorectal cancer screening which is the third most common cancer worldwide and the fourth most common cause of death. It affects both men and women equally. The colonoscopic screening for detection of colorectal cancer and adenomatous polyps started at the age of 50 years in asymptomatic individuals (men and women) and repeated every 10 years (American cancer society, 2017). Another important for indication of colonoscopy is the detection of colonic polyp: It is usually benign. Some colon polyps become cancerous tumours. Patients who have had adenomas detected and removed at colonoscopy should have more frequent follow up because of they at risk for developing metachronous adenomas or colon cancer. Colonoscopic polypectomy reduces both the incidence and mortality related to colorectal cancer (Cabebe, 2017).

Colonoscopy may play a role in the management of colonic obstruction from malignant and benign conditions. Approximately 15% to 20% of patients with colorectal cancer present with colonic obstruction. Benign causes of obstruction include volvulus, Crohn's disease, diverticulitis, anastomotic stricture, radiation injury, foreign bodies and intus susception. Benign strictures commonly treated by balloon dilation and less frequently with stents. Colonic stricture of malignant aetiology managed by stents and or surgery (ASGE, 2010). Colonoscopy is a procedure that used for diagnosis and treatment of a wide range of conditions and symptoms and the screening and surveillance of colorectal neoplasia. Although serious complications are uncommon up to 33% of patients, report at least one minor transient gastrointestinal symptom.

Justification

Colorectal cancer and other diseases detected by colonoscopy constitute a big burden on human health and health care services in addition to that precise or accurate data are unavailable to give an impression about the real extent of those problems in our society.

Objectives

1. To estimate the extent of colonoscopic finding among adult attended to colonoscopic centre.
2. To identify the type of pathological findings among patients who were biopsies had been taken.
3. To estimate the validity of colonoscopy (sensitivity & specificity).
4. To find out the main determent of the clinical and pathological finding of colonoscopy.

METHODOLOGY

The type of study: Evaluative type of study for technical evaluation aspect of the test

The study design: The study is a prospective analytical cross-sectional study. It is extended from February to the second week of September 2018.

The study population: Hospital-based study included all adults attended to colonoscopic centre for colonoscopy investigation in Al Hussein teaching hospital in Al Nasiriyah city Thi Qar Governorate.

Inclusion criteria: All adults both gender (male &female) attended to colonoscopic centre: age 18 years and older (Crepeau *et al.,* 2005; Cha *et al.,* 2015).

Exclusion criteria: Patients age 17years and younger, private patients attenders to avoid bias, Unprepared patients (That decided by examiners), and Pregnant patients.

$$\text{The sensitivity of the screening test} = \frac{\text{True positive results of the screening test}}{\text{Total No. of positive results by standard test}} \times 100$$

$$\text{The specificity} = \frac{\text{True negative results of the screening test}}{\text{Total No. of negative results by standard test}} \times 100$$

Sample and sampling procedure

A- Sample size: It was calculated from colonoscopic data in Al Hussein teaching colonoscopic hospital centre. The total number of adult colonoscopy in 2017 was (534). We supposed that the patient's distribution equal over all the months and seasons. So, for each month we suspect the attenders equal to (534÷12≈ 44.5) and the time decided for data collection was 6 months and due to the histopathology tend to be completed after two months from time of biopsy taken so the cut-off point of time was at the end of the fourth month at the end of June which equals 178 cases. There are 2 cases refused to share in the study after consulted the supervisor advice to replace by another (2) cases. Histopathological sample size depended on how many cases send for histopathological examination from the total participants. The total numbers were 43 cases; four cases could not found the results so excluded from the study. So only 39 cases included in the study.

B-Sample procedure: A consecutive patients attending the centre. Try to take all adult attended for colonoscopy after exclusion those with exclusion criteria. In the endoscopic centre Friday and Saturday holiday also Monday assign for OGD scopy only so that the real-time for data collection was 4days a week and time consumed in each day depending on the numbers of patients and at which time the appointment of examination.

The questionnaire

1- socio-demographic information.
2- Current medical history: concern with the symptomatology and their durations.
3- Past medical history: chronic illnesses related to the subject.
4- Family history; include Ca colon, IBD and polyp
5- Social history; include smoking habit, drinking alcohol
6- Dietary history: daily consumption of fruits and vegetables.
7- Investigation plain abdomen, OGD, CT, stool for occult blood, CBC, B urea, S creatinine and B sugar.

Colonoscopy

A patient who undergo colonoscopy pass in some steps before the procedure is done to him these include bowel preparation, cannulation for given sedative drugs, digital rectal examination and if prepared colonoscopy is done to him some patient excluded during examination and postpone for another date.

Adequate bowel preparation is mandatory for visualisation and diagnosis pathological lesions in the colon and terminal ileum. Inadequate preparation missed pathological lesion and postponed the procedures. So adequate preparation should be sufficient to allow polyp detection greater than 5 mm.

The day before colonoscopy avoids solid diet just plain water and fluid. Dissolve 4 bags of colon clean powder in 4 litres of water and drink it. The drinking of prepared solution started from 12 pm till 8 pm. Takes laxative one tab every 6 hours. At bedtime do a rectal enema with pure water till the fluid expulsion become clear.

The day of examination dissolve two bags of colon clean powder in 2 litres of water and takes it from 4 am till 6 am. repeated rectal enema with water only. The patient can take breakfast.

Colonoscopy examination

Colonoscopy is done by a trained gastroenterologist. The time consumed in this procedure range from 20 minutes to 60-minute start from cannulation till finished the procedure. Throughout it if detected any abnormal finding taken a biopsy or if there is polyp removed it and sent for histopathology.

Histopathological examination: The time needed for the histopathological result to appear range 40 days.

Ethical considerations

The ethical clearance was obtained from Al Hussein teaching hospital, Endoscopic centre and the laboratory. Also, take the permissions of patients for a participant in the research with protecting the name security use to follow up the biopsy results, read this form of ethical consideration before start questions.

Epidemiological analysis

To measure the validity of colonoscopy by measuring the sensitivity which is the ability of the test to correctly identify the true diseased person and measuring the specificity which is the ability of the test to correctly identify true non-diseased persons (Habib, 2006). The validity of colonoscopy is assessed against the results of histopathology.

Measure the predictive value by measuring the extent of true cases out of total positive cases by screening test and the true non-cases among the total negatives by the screening test. The overall agreement is the total No. of true results by the screening test out of total No. of cases. Or called repeatability. The overall miss-classification the total No. of false results by screening test out of total No. of cases Habib (2006).

Statistical analysis

Statistical Package for Social Sciences (SPSS) version 23 had been used for data analysis and excel program windows 7 for presenting the figures. The descriptive statistic in the form of frequencies, percentages Mean and stander deviation were used. Inferential statistics for the study of the association had been used in the form of test of significant (chi-square test) and binary logistic regression analysis P value (0.05) was a cut point for measuring statistical association where less than (0.05) had a significant statistical association.

RESULTS

Socio-demographic characters of the studied population

A hospital-based cross-sectional study has been implemented to one hundred and seventy-eight (178) participants. With the mean age of (43.35) year, median (41.50, and std. deviation ±15.149). That ranged from (18 to 81) years old. Male to female ratio (1.1:1).
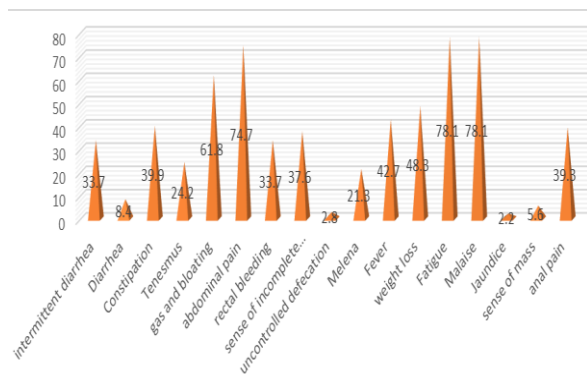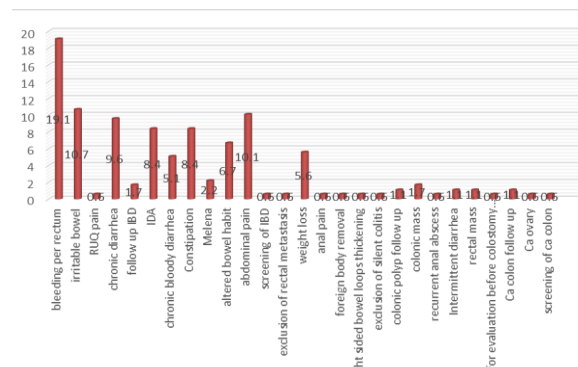

Figure 1: clinical manifestation of lower GIT problems

Socio-demographic characters of studied participant according to have a disease or not diagnosed by colonoscopy

Table (1) show the distribution of socio-demographic characteristics among the studied participants even though all the studied variables had no significant statistical association with having a disease or not where the P- value was more than 0.05. It was observed that the percent of a participant in the age group (34-49) (37.6%) close to the percent

in age group (50 and above) (37.3%). The percent of married participants were (79.2), and only (18.5%) of participant graduated from university. The main participants live in urban areas (73.0). (35.4%) were homemakers and (83.7%) of them medium socioeconomic class.


Figure 2: The main causes of referral

Clinical manifestation of lower GIT problems

Figure (1) shows the clinical manifestation of patients with lower gastrointestinal problems. Fatigue and malaise were the most prevalent symptoms (78.1) followed by abdominal pain (74.7), gas and bloating (61.8), weight loss (48.3), fever (42, 7), constipation (39.9), anal pain (39.3), sense incomplete evacuation (37.6), intermittent diarrhea and rectal bleeding the same percent (33.7), and the lowest percent for jaundice (2.2).

Figure (2) show the main causes of referral for colonoscopy center those as follow bleeding per rectum (19.1%), irritable bowel (10.7%), abdominal pain (10.1), chronic diarrhea (9.6%), constipation IDA same percent (8.4%), altered bowel habit (6.7), weight loss (5.6%) melena (2.2%), colonic mass and follow up IBD (1.7%), (colonic polyp follow up, intermittent diarrhoea, CA colon follow up shire same percent (1.1%)), and finally (0.6%) for each the following indications screening of IBD, exclusion of rectal metastasis, anal pain, foreign body removal, right-sided bowel loop thickening, exclusion of silent colitis, recurrent anal abscess, for evaluation before colostomy closure, CA ovary, and right upper quadrant pain.
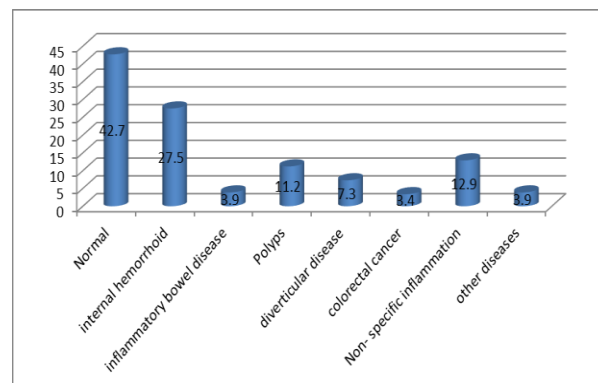
Figure 3: Colonoscopy finding

Table 1: Binary logistic regression of studied variables with the occurrence of diseases

Significance	Variables	B	Sig.	Exp (B)	95% C.I.for EXP (B)	
					Lower	Upper
Significant	Age	0.776	0.053	2.172	0.991	4.760
	rectal bleeding	0.928	0.006	2.529	1.298	4.931
Non significant	residence of patient	0.765	0.568	0.465	0.034	6.421
	the gender of the patient	0.315	0.321	1.370	0.736	2.550
Excluded (Non significant)	Constipation Gas & bloating tenesmus Dietary history	Socio-demographic Social history, Family history, Diarrhea, Weight loss			Past medical history, Abdominal pain	

Figure 3: show the colonoscopic examination finding among participant as follow normal (42.7%), internal hemorrhoid (27.5), nonspecific inflammation (12.9%), polyp (11.2), inflammatory bowel disease (3.9), colorectal cancer (3.4%), and other diseases (3.9%)

The association between the presence of the disease that diagnosed by colonoscopy and the clinical manifestations. It was seen that a significant statistical association between bleeding per rectum and presence of disease where P value was (0.006). while other clinical manifestations had no significant statistical association where P value more than (0.05) the past medical and drug history among the participants that having a disease or not. Even though there was no significant statistical association between diseases that diagnosed by colonoscopy and medical history where P value more than 0.05) the percent of the studied comorbidity and drug history among participants were as fallow IBD (2.8%) from total (3.9%) from diseased participants, CA colorectal (1.1%) from total (1.0%) from diseased, DM (11.8%) from total and (13.7%) from diseased participants, Hypertension (15.2%) from total and1 6.7%) from diseased participants, Surgical history (46.6%) from total and (50.0%) from diseased participants, Use NSAID (12.4%) from total and (12.7%) from diseased participants, and use steroid (7.3%) from total and (7.8%) from diseased participants. The distribution of family history among the participant even though there is no significant statistical association P value more than 0.05 the percent of the family history of CA colon and IBD was (2.0%) and for polyp was (0.0%). Table (2) show the distribution of risk factors among the participant even though there is no significant statistical association P value more than 0.05 the percent of smoker in those having a disease was (9.8%) while non -smoker (73.5%), In drinker (3.9%) while non- drinker (96.1%) and those not daily consuming fruit and vegetables (14.7%) while those daily consuming fruits and vegetables was (85.3%).

There was a significant statistical association between constipation and nonspecific inflammation and IBD where the P value less 0.05. The distribution of diarrhoea in specific diseases., Even though there is very highly significant statistical association where P value 0.005 in IBD other had no significant statistical association where P value more than 0.05. distribution of intermittent diarrhea in specific diseases even though there is significant statistical association where P value less 0.05 in non- specific inflammation other diseases had no significant statistical association where P value more than 0.05, the distribution of bleeding per rectum in specific diseases even though there is no significant statistical association where P value more 0.05 the percent of bleeding per rectum in specific diseases as fallow internal hemorrhoid (28.6%), non- specific inflammation (43.5), IBD (14.3), polyps (45.0%), diverticular disease (38.5%), and in colorectal cancer (66.7%).

There is no significant statistical association between the gender of participants and the diseases which diagnosed by colonoscopy. There is a statistical association between the residence of participants and the polyps. Other diseases had no significant statistical association.

Table (3) show the significant statistical association between the age groups and some diseases where is P value less than (0.05). They are as follow non- specific IBD (0.030), polyps (0.034), diverticular disease (0.016). There is no significant statistical association between the gender of participants and the histopathological results P value more than (0.05). There is no significant statistical association between the residence of participants and the histopathological results P value more than (0.05). There is no significant statistical association between the age groups and histopathological results.

Table 2: The distribution of risk factors among participants according to their have a disease or not diagnosed by colonoscopy

Variables	Have disease		No disease		Total		X^2	P
	No.	%	No.	%	No.	%		
Smoking								
Smoker	10	9.8	9.8	14.5	21	11.8	1.166	0.558
Non-smoker	75	73.5	55	72.4	130	73.0		
Ex-smoker	17	15.2	10	13.2	27	15.2		
Drinking alcohol								
No	98	96.1	76	100.0	174	97.8	3.049	0.081
Yes	4	3.9	0	0.0	4	2.2		
Daily consumption of fruits and vegetables								
No	15	14.7	10	13.2	25	14.0	0.086	0.769
Yes	87	85.3	66	86.8	153	86.0		
Total	102	100	76	100	178	100		

Table 3: The association between the age groups of the participant and specific diseases diagnosed by colonoscopy

Variables	Age 18-33y		Age 34-49y		Age 50 & above		total		X^2	P
Internal haemorrhoid										
No	41	31.8 / 78.8	46	35.7 / 68.7	42	32.6 / 71.2	129	100 / 72.5	1.597	.450
Yes	11	22.4 / 21.2	21	42.9 / 31.3	17	34.7 / 28.8	49	100 / 27.5		
Non- specific inflammation										
No	42	27.1 / 80.8	57	36.8 / 85.1	56	36.1 / 94.9	155	100 / 87.1	5.299	.071
Yes	10	43.5 / 19.2	10	43.5 / 14.9	3	13.0 / 5.1	23	100 / 12.9		
Inflammatory bowel disease										
No	47	27.5 / 90.4	65	38.0 / 97.0	59	34.5 / 100.0	171	100 / 96.1	7.019	.030
Yes	5	71.4 / 9.6	2	28.6 / 3.0	0	0.0 / 0.0	7	100 / 3.9		
Polyps										
No	51	32.3 / 98.1	58	36.7 / 86.6	49	31.0 / 83.1	158	100 / 88.8	6.777	.034
Yes	1	5.0 / 1.9	9	45.0 / 13.4	10	50.0 / 16.9	20	100 / 11.2		
Diverticular disease										
No	50	30.3 / 96.2	65	39.4 / 97.0	50	30.3 / 84.7	165	100 / 92.7	8.273	.016
Yes	2	15.4 / 3.8	2	15.4 / 3.0	9	69.2 / 15.3	13	100 / 7.3		
Colorectal cancer										
No	52	30.2 / 100.0	65	37.8 / 97.0	55	32.0 / 93.2	172	100 / 96.6	3.949	.139
Yes	0	0.0 / 0.0	2	33.3 / 3.0	4	66.7 / 6.8	6	100 / 3.4		

The examination of studied variables associated with the development of lower gastrointestinal diseases in the current study through a binary logistic regression through multi-variant analysis.

The rectal bleeding had a highly significant statistical association with diseases where the P value (0.006) also the age had a significant statistical association where the P value (0.05) while the other independent variable residence of patient and genders had no significant statistical association which consider as confounders. Other variables excluded.

DISCUSSION

The current study was the first study done in Thi-Qar governorate exploring the main and detail frequencies and percentage of predefined problems

and its determent. In this study, we are missing the seasonal effect because the time designated for data collecting was four months.

The colonoscopy results were normal in (42.7%) of participants even though only (0.6%) referred for screening purposes. So, the referral for diagnostic colonoscopic examination needs full history is taken and investigation to decrease the burden on the health system and patients., internal haemorrhoid (27.5), nonspecific inflammation (12.9%), polyp (11.2), inflammatory bowel disease (3.9), colorectal cancer (3.4%), and other diseases (3.9%) The disease patients had more than one pathology. This study comparable to (Bowles *et al.,* 2003).

A hospital-based cross-sectional study has been implemented to one hundred and seventy-eight (178) participants. With the mean age of (43.35) year, median (41.50), and std. Deviation (±15.149). That ranged from (18 to 81) years old. Male to female ratio (1.1:1). There was no significant difference between the two genders. This is comparable to the (Akere *et al.,* 2016). In the current study, there was a significant statistical association between age groups and specific diseases like IBD, non- specific inflammation diverticular diseases and polyps. There was no significant statistical association between the age and CRC the increasing percent of CRC in elderly might be due to increasing the percent of risk factors like polyps. The majority of participant live in urban areas with (73.0%), and there is no significant statistical association with the occurrence of diseases and residence of patients. The majority of the participant with a primary level of education (39.3%) of total participant fallow by illiterate with (33.1%) the summation of these percent represents the high percent of the total participant. The educational level showing no significant statistical association with the occurrence of diseases. The majority of participant married with (79.2%) there is no significant statistical association with the occurrence of diseases and marital status. The majority of the participant was employment with (25.8%) of total participant there is no significant statistical association with the occurrence of diseases and the job. Regarding the socio-economic status the majority with the medium state with (83.7%) there is no significant statistical association with the occurrence of diseases.

In the current study bleeding per-rectum is a big predictor sign of lower gastrointestinal problems. There is a significant statistical association between constipation and non- specific inflammation and an IBD P value less than 0.05 it is inverse association while diarrhoea had a very high significant statistical association with IBD. Intermittent diarrhoea had a significant statistical association with non- specific inflammation. Fatigue and malaise were the most prevalent symptoms (78.1%) they are not specific for lower gastrointestinal problems followed by abdominal pain (74.7%) which differ in severity and duration, gas and bloating (61.8%), weight loss (48.3%) which consider an important sign for malignancy or chronicity of diseases, fever (42, 7%), constipation (39.9%), anal pain (39.3%), sense incomplete evacuation (37.6%), intermittent diarrhea and rectal bleeding the same percent (33.7%). The patients had more than one complaint. The current study differs from the (Pradhan et al. (2015) this may be due to dietary habits and socio-demographic characters.

In the current study, the main causes for referral to colonoscopy centre were bleeding per rectum (19.1%). Compared to Akere, *et al.,* (2016) were the most common indication of referral was hematochezia. The sensitivity of colonoscopy in the current study was (100%) comparable to the Pradhan, et al. (2015) while the specificity was (50%) uncomparable to the (Pradhan *et al.,* 2015) this may reflect to cause of referral that to excluded microscopic colitis which appears normal in colonoscopy. So, colonoscopy sensitive in the diagnosis of disease patient but unspecific incorrectly identifies true non-diseased persons.

CONCLUSION

Colonoscopy is highly sensitive to identify of true disease patient but it less specific in identify of true non-disease person. The abnormal finding constitutes about (57.3%) of the attendant. Bleeding per-rectum is a big predictor sign of lower gastrointestinal problems, and it is the main cause of referral. The most abnormal finding was an internal haemorrhoid.

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