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Assessment of clinical presentation, colonoscopic appearance and biopsy patterns of colonic diseases – A prospective observational study at a tertiary care centre

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Abstract

Introduction: A wide variety of colonic diseases are encountered in clinical practice encompassing idio pathic, infectious, vascular and immune mediated a etio logies. Colon is the site for many benign and malignant lesions and is associated with a wide spectrum of symptoms.

The patients present with complaints of abdominal pain, altered bowel habits, flatulence, unexplained weight loss, blood or mucus in stools.

Colonoscopic examination is therefore important in the diagnosis and treatment of various suspected colonic diseases1.

Although the interpretation of clinical presentation of such diseases may be challenging, the appreciation of colonoscopic appearances and biopsy patterns may allow for a more focused diagnosis2. The development of flexible endoscopes has led to a great increase in the examination and mucosal biopsy evaluation of all portions of the large intestine21. It is relatively safe with a low incidence of serious complications.

Aim: Assessing the importance of colonoscopy and histopathological examination in the wide spectrum of presentation of colonic diseases.

Methods and materials: The prospective observational study was carried out on indoor patients of general surgery ward of our tertiary health care teaching hospital on around 30 patients presenting with clinical features of large bowel diseases.

Results: We have evaluated a total of 33 patients admitted to our general surgery ward who presented with symptoms suggestive of lower gastrointestinal tract. In our study, there was a slight female preponderance of colonic diseases which is in contrast to other studies. In this study the male to female ratio was 0.8:1. The most common presenting symptom was abdominal pain in 24

(72.73%) out of 33 patients. Constipation was the next most common symptom. About 18.18% of the patients in this study did not show any findings on colonoscopy despite being symptomatic for lower gastrointestinal tract conditions. Hyperaemia was the most common finding on colonoscopy in this study.

Conclusion: Colonoscopy is currently one of the most complete tools for colorectal disease investigation. When colono scopy is paired with biopsy and his to pathology, it gives us a definitive diagnosis which helps in planning the further line of management.

Keywords: Colonoscopy, hyperaemia, biopsy, histo pathology

Introduction

Colon is the site for many benign and malignant lesions and is associated with a wide spectrum of symptoms. The patients present with complaints of abdominal pain, altered bowel habits, flatulence, unexplained weight loss, blood or mucus in stools. Colonoscopic exam ination is therefore important in the diagnosis and treat ment of various suspected colonic diseases1.

Although the interpretation of clinical presentation of such diseases may be challenging, the appreciation of colonoscopic appearances and biopsy patterns may allow for a more focused diagnosis2. The development of flexible endoscopes has led to a great increase in the examination and mucosal biopsy evaluation of all portions of the large intestine21. It is relatively safe with a low incidence of serious complications.

According to a study done by Rangaswamy et al, colonoscopic mucosal biopsy has shown to be the most accurate indicator of the extent of colonic involvement in IBD. Colonoscopy helps in locating the exact site of the lesion and the type of lesion whereas colonic mucosal biopsy helps to clinch the diagnosis3,4. It may be not only be a diagnostic procedure but also prove therapeutic in certain cases such as polypectomy, stricture dilatation, foreign body removal, etc. It is the diagnostic procedure of choice in the setting of chronic diarrhoea and lower gastrointestinal bleed. It is also used as a screening tool to identify and remove precancerous and cancerous lesions. Hence, it is considered to be gold standard for cancer surveillance. Ultimately, it helps in reducing many open surgical procedures, giving an opportunity to the surgeon to make a better decision regarding further management of the patient. Based on the histo patho logical interpretations, correlation of colonic mucosal biopsies with clinical findings enables definitive diagnosis and early treatment of patients.

The procedure of colonoscopy requires adequate bowel preparation as inadequacy of it leads to decrease in the rates of detection of early adenomatous lesions and an overall unsatisfactory patient experience. Higher rates of missed diagnosis of early malignant lesions may contribute to increased morbidity of such patients. Hence, it is important to know the correct method of pre paring the bowel before colonoscopy. Bowel preparation is done by administering laxatives and advising a low residue liquid diet prior to the colonoscopy. Split dose regimens consisting of 2L PEG/Ascorbate has shown good efficacy in terms of higher polyp and early adenoma detection rates23. Split dose regimens have been shown to be superior to single dose regimens, wherein half of the bowel preparation is taken the night prior to and half is provided on the day of the colonoscopy. Colon cleansing in inflammatory bowel diseases is critically important both for disease assessment and detection of dysplasia.

Recently the promotion of chromoendoscopy in inter national guidelines has made high quality bowel

preparation even more crucial24. Patients with IBD bear a heavy burden from colonoscopy for disease assessment and surveillance25. One in 8 patients may experience a disease flare in the weeks following colonoscopy that may relate to the bowel preparation26. Education regarding bowel preparation is another critical aspect for adequate bowel preparation.

A PR colonoscopy counselling should be done by the physician and nurse. One of the key elements in raising suspicion of inflammatory bowel disease as a diagnostic possibility is the chronicity of symptoms such as diarrhoea and per rectal bleed. This warrants and justifies a colonoscopic examination.

Due to its relatively low incremental cost, colonoscopy represents a cost-effective means for detection of colorectal lesions. The entire length of the colon can be routinely accessed with a high-resolution camera and photography of desired lesion, biopsies and brush cytologist.

Virtual colonoscopy has emerged as a new technique introduced by Vining in 1994. In this method, data from computed tomography is used to generate 2D and 3D images of the colon and rectum. It is a minimally invasive technique called CT colonography, not requiring any intravenous administration of sedatives, analgesia or recovery time. It has the added advantage of detecting abnormalities outside the colon, but biopsy cannot be taken for histopathological examination.

In most cases, final diagnosis of the colonic condition is based on the coherence of clinical findings, laboratory data, colonoscopic and biopsy findings along with the help of imaging studies like sonography and CT.

This study was undertaken to assess the wide spectrum of clinical findings, colonoscopic appearance and biopsy patterns of various conditions affecting the lower gastrointestinal tract which may help distinguish specific diseases**.**

Material and methods

The prospective observational study was carried out on indoor patients of general surgery ward of our tertiary health care teaching hospital on around 30 patients presenting with clinical features of large bowel diseases.

Sample size

This is prospective observational study. Calculation of sample size was not possible as the prevalence of gastrointestinal diseases as one entity is not described. Prevalence of individual gastrointestinal diseases for example IBD, colonic polyps, colon cancer is available. As our study includes the assessment of lower gastro intestinal diseases, calculation of sample size based on one disease specific prevalence rate would be incorrect. Hence, participants were recruited as they presented to the outpatient care during the study duration.

Results

Table 1: Distribution according to age

Age	No of patients	Percentage
<20	2	6
21- 30	5	15.15
31-40	9	27.3
41-50	8	24.24
51-60	5	15.15
61-70	4	12.16
Total	33	100

• The youngest patient was 16 years of age and the oldest patient was 68 years of age.

• The average age of patients was 41.78.

• Majority of the evaluated patients belonged to the age group of 31-40 years (27.3%)

followed by those in the 41-50 years of age (24.24%).

Figure 1: Distribution according to age

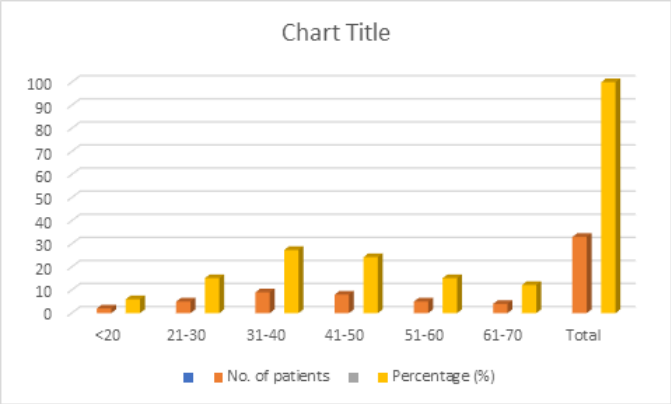


Table 2: Distribution of patients according to sex

Gender	Number	Percentage
Male	15	45.45
Female	18	54.55
Total	33	100

The above table shows sex distribution among patients. Out of 33 cases 15 were male (45.45%) and 18 were females (54.54%)

Figure 2: Distribution of patients according to sex

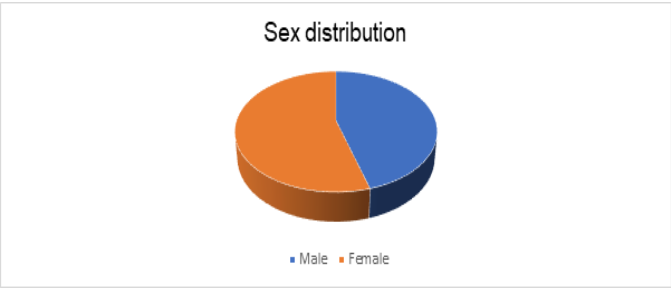


Table 3: Distribution of presenting symptoms

Symptoms	Frequency*	Percentage
Pain in abdomen	24	72.73
Altered bowel habits		
1) Constipation	11	33.33
2) Loose stools	9	27.3
Blood in stools	8	24.24
Lump in abdomen	2	6.06
Abdominal distension	4	12.12
Fever	4	12.12
Vomiting	2	6.06

Figure 3: Distribution of presenting symptoms

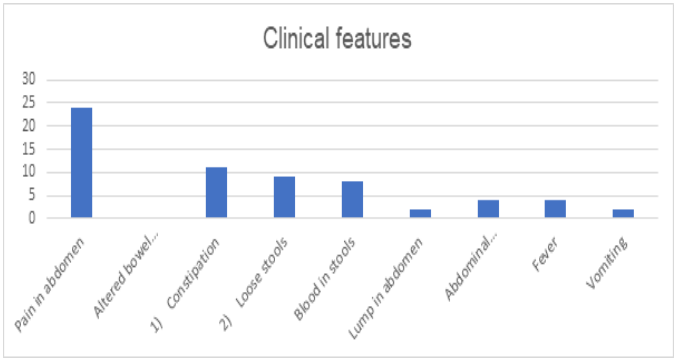


Table 4: Findings on colonoscopy

Findings	Frequency*	Percentage
Normal study	6	18.18
Growth	6	18.18
Ulcer	3	9.09
Polyp	1	3.03
Stenosis/Narrowing	3	9.09
Hyperaemia	11	33.33
Pseudo polyp	3	9.09
Others	6	18.18

Figure 4: Findings on colonoscopy

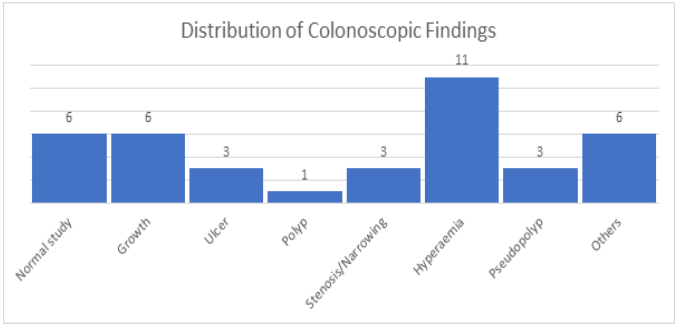


Table 5: Distribution of lesions in the colon

Site of lesion	Frequency*	Percentage
Rectum	8	24.24
Sigmoid colon	7	21.21
Descending colon	2	6.06

Splenic flexure	1	3.03
Transverse colon	3	9.09
Hepatic flexure	2	6.06
Ascending colon	3	9.09
Caecum	6	18.18
Entire colon	1	3.03

Figure 5: Site of colonic lesions

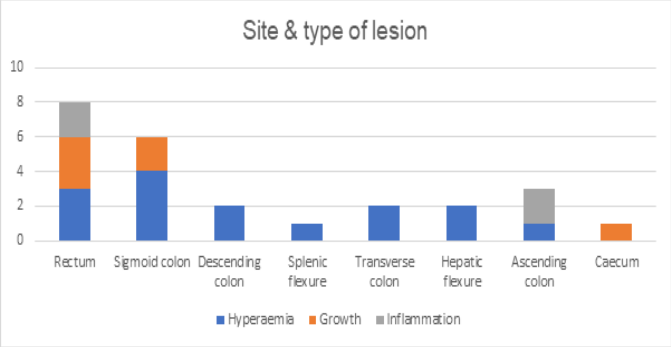


Table 6: Distribution of types of lesions according to site

Site	Hyperaemia	Growth	Inflammation
Rectum	3	3	2
Sigmoid colon	4	2	0
Descending colon	2	0	0
Splenic flexure	1	0	0
Transverse colon	2	0	0
Hepatic flexure	2	0	0
Ascending colon	1	0	2
Caecum	0	1	0

Figure 6: Site and type of lesions in the colon

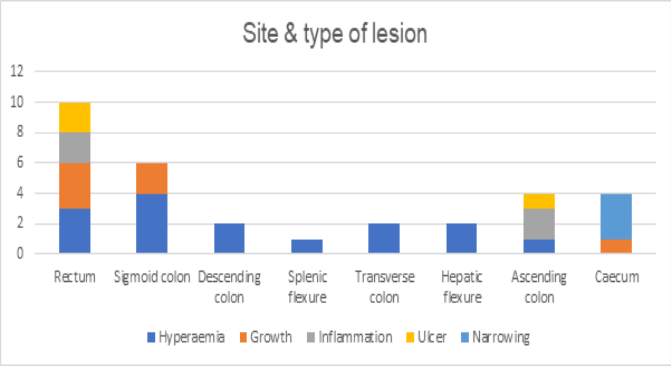


Table 7: Intervention done

Intervention	Frequency	Percentage
Biopsy	25	75.75
Polypectomy	1	3.03
Fecal microbiota transplant	6	18.18
No intervention (diagnostic)	1	3.03
Total	33	100

Figure 7: Colonoscopic interventions done

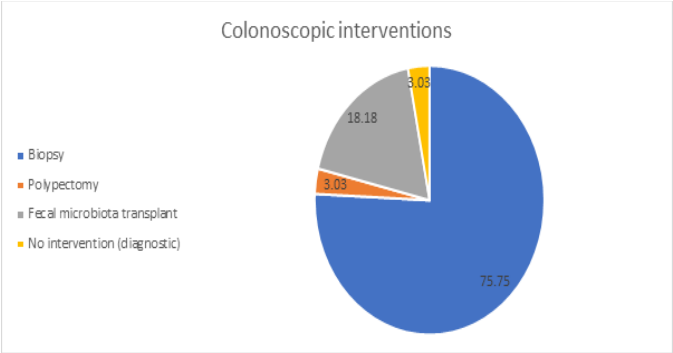


Table 8: Histopathological diagnosis

Histopathological diagnosis	Frequency	Percentage
Mucinous adenocarcinoma	4	15.4
Squamous cell carcinoma	1	3.8
Carcinoid tumour	1	3.8
Dysplasia	1	3.8
Granulomatous lesion suggestive of tuberculosis	2	7.7
IBD		
Ulcerative colitis	2	7.7
Crohn's disease	1	3.8
NSIL- Nonspecific inflammatory lesion	8	30.7
CIL – Chronic inflammatory lesion	5	19.2
Juvenile polyp	1	3.8
Total	26	100

Figure 8: Histopathological diagnosis

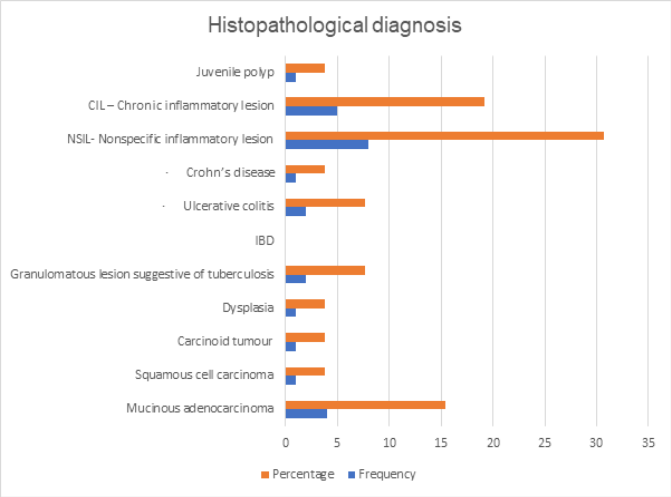
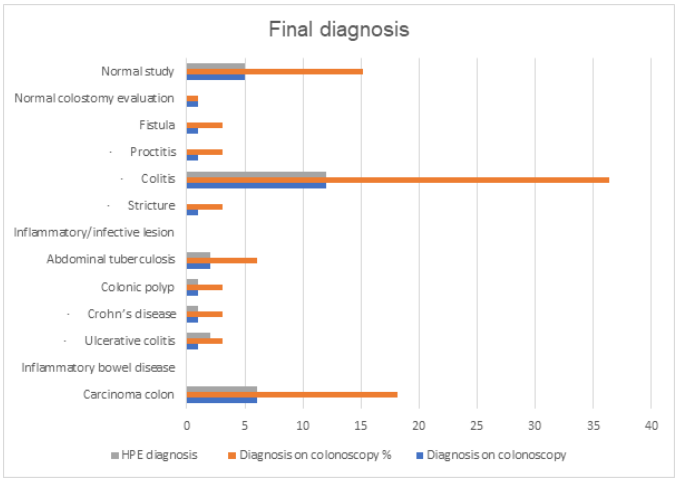


Table 9: Correlation between suspected diagnosis and histopathology

	Diagnosis on colonoscopy		HPE diagnosis
		%	
Carcinoma colon	6	18.18	6
Inflammatory bowel disease			
· Ulcerative colitis	1	3.03	2
· Crohn's disease	1	3.03	1
Colonic polyp	1	3.03	1
Abdominal tuberculosis	2	6.06	2
Inflammatory/infective lesion			
· Stricture	1	3.03	0
· Colitis	12	36.36	12
· Proctitis	1	3.03	0
Fistula	1	3.03	0
Normal colostomy evaluation	1	1	0
Normal study	5	15.15	5
Total	32	94.93	29

Figure 9: Final diagnosis



Discussion

Colonoscopy has revolutionized the clinical management of colonic diseases. It is a highly sensitive and specific test. Colonic diseases often produce characteristic colonoscopy findings, as well as characteristic histologic findings, as identified in colonoscopy biopsy or polypectomy specimens. Colonoscopy is relatively safe, with a low incidence of serious complications, such as colonic perforation, hemorrhage, cardiopulmonary arrest, or sepsis.2 Spectrum of colonic diseases varies from benign to malignant, of which the incidence and mortality differ across the world due to differences in risk factors. Colonoscopy is carried out for diagnostic as well as therapeutic purposes. It is also useful for screening or surveillance of colon cancer in high-risk patients as well as assessing treatment response in patients with known large intestinal disease.98 the procedure of colonoscopy is safe and effective in evaluating the large intestine with a very low incidence of com plications like perforation or bleeding and a mortality rate of only 0.007 %.99 Inflammatory bowel diseases and malignancies are the two most important pathologies that require colon tissue samples to be excluded, thus increasing the number of

colonoscopies; therefore, an increasing number of biopsies are done each year building up to one of the major healthcare programs world - wide.100 Diarrhea is a valid indication for colonoscopy if it is chronic (more than three watery stools per day for at least four weeks) and once infective causes have been excluded. In these cases colonoscopy is demanded to rule out inflammatory bowel disease or, in cases of normal colonic mucosa, random colon biopsies may be useful to detect microscopic colitis.101

The aim of this study was to identify colonic lesions in patients presenting with a wide spectrum of lower gastro intestinal symptoms such as chronic abdominal pain, per rectal bleeding, constipation or diarrhoea. Another object was to correlate between the presentation, colonoscopy findings and histopathological appearance of various colonic diseases.

In the present study, the age distribution of patients admitted to the general surgery ward with com plaints of lower gastro intestinal symptoms suspicious of colonic diseases ranged from 16 years to 68 years with a mean age of 41.78 years. Out of the 33 patients, 18 were females (54.55%) and males constituted for 45.45% (15/ 33). Majority of the evaluated patients belonged to the age group of 31-40 years (27.3%) followed by those in the 41-50 years of age (24.24%). The incidence of colonic diseases increases with age. In our study, there was a slight female preponderance of colonic diseases which is in contrast to other studies. In this study the male to female ratio was 0.8:1. The most common presenting symptom was abdominal pain in 24 (72.73%) out of 33 patients. Constipation was the next most common symptom reported in 11 patients (33.33%). Other common symptoms were loose stool (27.3%) followed by blood in stools (24.24%) and weight loss (24.24%). According to a cross sectional study done by Bafandeh and Yazdanpanah102, 34.76% of the 2300 patients who underwent colonoscopy, abdominal pain was the most common complaint which is consistent with this study.

All patients in this study were examined thoroughly with proper history before performing imaging and planning a colonoscopy. About 18.18% of the patients in this study did not show any findings on colonoscopy despite being symptomatic for lower gastrointestinal tract conditions. Hyperaemia was the most common finding on colonoscopy in this study accounting for 33.33% followed by growth in 18.18% of patients. This is in contrast to another study by Raj Bhandari et al103 in which non specific colitis and polyps were more common findings.

In another study by Bafandeh and Yazdanpanah102, the most commonly encountered lesion was polyp (14.4%) followed by IBD (10.9%). In this study, 6 patients had other findings which included fistula, stricture and inflammatory changes.

Despite different colonic symptoms, the incidence of finding a normal appearing mucosa is high and this can be attributed to functional bowel diseases such as irritable bowel syndrome which manifests as abdominal pain and altered bowel habits. This wide spectrum of colonoscopic findings can be attributed to racial differences, geographical variations, lifestyle, environ mental and dietary factors.

In our study, the most commonly involved site in the colon was the rectum. 8 out of 33 patients had a rectal involvement making up for 24.24%. This was followed by the sigmoid colon (21.21%) and the caecum in 18.18% of cases. This is in agreement with findings of another study done by Mahmoud et al wherein 52.2% of

the patients had a rectal involvement. The transverse colon and ascending colon had an equal involvement (9.09%). Hyperaemia was most commonly seen in the sigmoid colon whereas growth was most commonly seen in the rectum. Inflammatory changes were seen in the rectum and ascending colon whereas ulcerations were noted in the rectum. Luminal narrowing was seen in the caecum alone. 1 patient came for stoma evaluation and had normal colonoscopy findings.

1 patient who was a treated case of cervical cancer presented with abdominal pain and per rectal bleeding. Colonoscopy showed a growth in the rectum which when biopsied showed a squamous cell carcinoma. The availability of colonoscopy in this case led to an increased rate of examination of the entire colon and mucosal biopsy of the rectum which led to a definitive diagnosis of metastasis of cervical cancer to the rectum which would've not been possible with imaging techniques such as CT alone.

Out of 33 patients in this study, interventions were performed in 32 patients. The most common intervention done was mucosal biopsy followed by fecal microbiota transplant in 6 patients.

1 patient who came with complaints of something coming out of the anus was diagnosed with rectal pro lapse and underwent a colonoscopy which revealed a rectal polyp not evident on clinical examination. This patient underwent a colonoscopic polypectomy.

The most common lesion, hyperaemia, was located in the sigmoid colon followed by the rectum. Growth was seen more commonly in the rectum followed by the sigmoid colon. Ulcers were seen involving the rectum in 2 cases and the ascending colon in 1 case. Narrowing was seen only in the caecum.

Colorectal cancer (CRC) is one of the most prevalent and lethal cancer and accounts for about 10% of all newly diagnosed and deaths of cancer in the world. Histology is the key for diagnosis and treatment guidance of cancer. The most common pathological subtype is non- specific adenocarcinoma (AC) which accounts for about 85% of all CRC patients, mucinous adenocarcinoma (MAC) is the second leading subtype with about 10%-20% proportion of total CRCs. MAC is defined by the characteristic of at least 50% of the tumor volume is comprised of abundant mucinous components. The clinicopathological features and prognosis are distinct, although both MAC and AC belong to adenocarcinoma of CRC. MAC patients always had advanced tumor stage, poor chemotherapy response and poor long- term survival compared with AC patients, which indicated more attention should be paid to diagnosis and treatment of MAC. Endoscopy with biopsy is the "gold standard" for the preoperative diagnosis of CRC with extremely high accuracy and guiding significance for treatment. Endoscopy could observe the whole large intestine and tumor gross morphology, as well as obtain biopsy specimens. Colonoscopy has been recommended as the preferred initial screening test by several medical authorities including the American College of Gastroenterology and is being widely performed in the United States for screening among average-risk individuals. Colonoscopy also allows for removal of most precancerous polyps at the time of detection. A screening interval of 10 years after a normal colonoscopy has been adopted based on the estimate of the time it takes for an adenomatous polyp to transform into carcinoma. However, the duration over which the risk of CRC remains decreased following the performance of a normal colonoscopy

remains unknown Of the 33 patients, 6 were reported to have a growth on colonoscopy which was biopsied.

Out of those 6, 4 were diagnosed with mucinous adenocarcinoma, 1 with squamous cell carcinoma and 1 with carcinoid tumour.

With the rapid therapeutic advancement in the era of personalized medicine, the role of pathology in the management of patients with colorectal carcinoma has greatly expanded from traditional morphology to pro viding a clinical aid for gastro enterologists, colorectal surgeons, oncologists and medical geneticists. In addition to providing accurate histopathologic diagnosis, pathologists are responsible for accurately assessing pathologic staging, analyzing surgical margins, searching for prognostic parameters that are not included in the staging such as lymph vascular and perineural invasion, and assessing therapeutic effect in patients who have received neo adjavant therapy.

More than 90% of colorectal carcinomas are adeno carcinomas originating from epithelial cells of the colorectal mucosa104. Conventional adenocarcinoma is characterized by glandular formation, which is the basis for histologic tumor grading. In well differentiated adenocarcinoma >95% of the tumor is gland forming.

Moderately differentiated adenocarcinoma shows 50-95% gland formation. Poorly differentiated adeno carcinoma is mostly solid with <50% gland formation. In practice, most colorectal adeno carcinomas (70%) are diagnosed as moderately differentiated.

2 out of 33 patients who presented with complaints of pain in abdomen and a past history of pulmonary tuberculosis were found to have short segment circumferential strictures with ileocaecal narrowing on colonoscopy. Ileocaecal region is the most commonly involved area in TB due to numerous reasons such as physio logical stasis, high rate of fluid and electrolyte absorption, and an abundance of lymphoid tissue.105 Thus, biopsy from a normal-appearing terminal ileum is likely to reveal granuloma in an additional 4% of patients.106 Terminal ileal involvement alone with relative cecal sparing has also been described in TB. Segmental colonic involvement in the absence of ileocaecal involvement and pancolitis may be noted in 10%–20% and 5% of cases, respectively.107

Endoscopic evaluation, particularly the macroscopic mucosal and histological results of ileocolic biopsies, is essential for the management of inflammatory bowel disease.

Endoscopic appearance is not always sufficient to differentiate Crohn's disease and ulcerative colitis, but there are some characteristics that favor one or another diagnosis. Both diseases have an increased incidence of colorectal carcinoma; so, surveillance colonoscopy is important for detecting early neoplastic lesions. In our study, one patient presented with complaints of abdominal pain, loose stools and blood in stools.

Another patient presented with abdominal pain and constipation. On colonoscopy, the first patient had evidence of mucosal ulceration, multiple punctate hemorrhages and pseudo polyp formation in the rectum and sigmoid colon. The next patient had evidence of pseudo polyps in the sigmoid colon. Endoscopy is indicated in UC during severe disease crisis due to its prognostic value. Endoscopic examination should be performed without bowel cleansing, with minimal or no insufflation, for the potential risk of perforation.

Carbonnel et al demonstrated that total colonoscopy is feasible in 86% of severe cases of UC (73/85), and when severe endoscopic lesions are present, colectomy is very likely to be indicated: only 3/46 patients with severe

endoscopic lesions (7%) compared to 29/39 patients without such lesions (74%) maintained their colon after treat ment.108

Fecal microbiota transplant (FMT), also known as a stool transplant is the process of transferring fecal bacteria and other microbes from a healthy individual into another individual. FMT is an effective treatment for Clostridioides difficile infection (CDI). For recurrent CDI, FMT is more effective than vancomycin alone, and may improve the outcome after the first index infection.109 irritable bowel syndrome (IBS) affects about 12% of the global population. Although IBS does not develop into a serious disease or increase mortality, it results in a considerable reduction in the quality of life. The etiology of IBS is not known, but the intestinal microbiota appears to play a pivotal role in its pathophysiology. There is no effective treatment for IBS, and so the applied treatments clinically focus on symptom relief. Fecal microbiota transplantation (FMT), an old Chinese treatment, has been applied to IBS patients in seven randomized controlled trials (RCTs). Positive effects on IBS symptoms in various degrees were obtained in four of these RCTs, while there was no effect in the remaining three. In our study, 6 patients underwent FMT with positive results in the form of reduction in the symptoms like abdominal pain and loose stools.

This is in accordance with another study done by El Salhy & Patcharatrakul110 which claims that FMT has promising results for the treatment of IBS.

In the present study, the histopathological diagnosis correlated well with the diagnosis offered by colonoscopy but the symptoms for various colonic diseases were nonspecific. On histopathology, the most common diagnosis was NSIL – Nonspecific inflammatory lesion. The term non-specific colitis refers to an inflammatory condition of the colon that microscopically lacks the characteristic features of any specific form of colitis and is commonly seen in pathology reports of colonoscopy biopsies. In fact, it has been questioned whether it is a separate pathological entity or it is merely an intermediate stage in the course of inflammatory bowel disease.111

2 patients showed granulomatous lesion on histo patho logy for abdominal tuberculosis. The histo patho logical diagnosis correlated well with the history of the patient and colonoscopic diagnosis.

The most common complication of colonoscopy still remains perforation albeit with a lesser frequency of 1/10,000 per year. Other complications are the result of patient comorbidities. In our study, no complications were observed in patients during and after colonoscopy.

This study represents a spectrum of conditions of the colon diagnosed on colonoscopy and histopathology performed for various symptoms of the lower gastrointestinal tract. Efforts have been made to make a correlation between the colonoscopy finding and histopathology with the clinical features in each patient retrospectively. As mentioned in the literature, the incidence of colonic diseases increases with age. We did not check risk factors on an individual level and could not calculate the prevalence of each colonic condition. Another point to asses was the correlation between the presenting symptoms and the type of lesion found on colonoscopy.

We considered both clinical examination and laboratory testing to support our provisional diagnosis. Help of imaging modalities such as ultrasound and computed tomography was taken wherever necessary.

The accuracy of CT in the preoperative staging of colon carcinoma ranges from 48% to 78%. Although CT is highly specific in detecting metastatic lymph nodes, it has a low sensitivity. By the use of colonoscopy, the diagnostic yield of colon cancer increased significantly.

In conclusion, it is wiser to make use of colonoscopy and histopathology in correlation with lower gastrointestinal symptoms in order to make an appropriate diagnosis of colonic conditions. All factors, apart from symptoms, like age of the patient, auxiliary clinical examination results, medical and family history should be taken into account.

The use of colonoscopy for screening of colon cancer has significantly increased the rate of detection in the early stages, thereby increasing the chances of a successful treatment outcome.

Nonspecific gastrointestinal symptoms can be attributed to a wide range of colonic conditions which may lead to a misdiagnosis and improper treatment of patients. Hence, colonoscopy plays an important role in the diagnosis and management of colonic diseases.

Limitations

1.Single Centre Study

2. Sample Size small

Conclusion

Colonoscopy is a very simple, safe and effective procedure which helps in locating various lesions in the entire colon and confirming the diagnosis by histopathology. Colonoscopy aids not only in the diagnosis but also in the treatment of the patient. It also allows a more informative follow up especially in conditions such as colon cancer and inflammatory bowel disease which have a protracted course. Serial biopsies of intestinal mucosa can be useful for a differential diagnosis, and to modify the treatment. It also makes it possible to identify early lesions in risk groups, to investigate signs and symptoms of abdominal pain, gastrointestinal bleeding, changes in bowel habits, chronic diarrhea, unexplained refractory iron deficiency anemia and abdominal masses, to follow patients treated for colorectal cancer or inflammatory bowel disease. Through colonoscopy, it is possible to visualize the mucosa of the terminal ileum, colon and rectum, and to check for macroscopic lesions. In addition, several procedures can be performed, especially biopsies.

The introduction of associated technologies, such as chromoscope and image magnification, has extended the use colonoscopy, making it easier to identify subtle lesions and benefiting a greater number of patients. In fact, colonoscopy is currently one of the most complete tools for colorectal disease investigation. When colonoscopy is paired with biopsy and histopathology, it gives us a definitive diagnosis which helps in planning the further line of management.

Overall, both colonoscopy and histopathology are required to make an appropriate diagnosis. Neither can be relied upon singly. The study shows that there is a wide spectrum of symptoms which are not specific to the various colonic diseases. Hence, one should make a good correlation between the presenting symptoms, colonoscopic appearance and biopsy patterns of colonic diseases.

Acknowledgement

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