



## Histomorphological Study of Lower Gastrointestinal Tract Lesions in Per Rectal Bleeding Cases

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### ABSTRACT

The present study on the histomorphology of lower gastrointestinal tract lesions in patients presenting with per rectal bleeding was two years (June 2015 to May 2017) cross-sectional study carried out in the department of pathology of a tertiary care hospital and included 40 cases. Constipation was the most typical associated symptom along with per rectal bleeding. Clinical details and radiological investigations helped in making the diagnosis of all lesions of the lower gastrointestinal tract causing per rectal bleeding. The mean age at presentation in benign lesions was 33 years, while the mean age at presentation in malignant lesions was 61 years. The mean age at presentation of adenocarcinoma was 62 years. Majority of cases of adenocarcinoma presented with Astler-Coller stage C1. The other malignancies of the lower gastrointestinal tract causing per rectal bleeding were clonogenic carcinoma, neuroendocrine carcinoma and moderately differentiated squamous cell carcinoma. The most common cause of per rectal bleeding amongst the lower gastrointestinal tract is a neoplastic lesion. The lesions of the lower gastrointestinal tract causing per rectal bleeding are seen more commonly in male patients with a predominant age group of above 40 years, and constipation is the most typical associated symptom in these cases. The most common cause of per rectal bleeding amongst the lower gastrointestinal tract is a neoplastic lesion.



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### INTRODUCTION

Rectal bleeding occurs in 20% of the population annually in India. As is believed to be a common symptom in the general population, it is still unclear which patients require investigations to

exclude severe underlying pathology. (Lewis *et al.*, 2002) Mortality for lower gastrointestinal bleeding is around 11% and reaches to 21% for the acute massive category.

Khandelwal (2003) It is considered to be an important sign of colonic diseases, in particular of colorectal cancer. Histopathological study plays an important role in the proper management of cases of lower gastrointestinal tract lesions.

The present study includes the diagnosis of lower gastrointestinal tract lesions in cases of per rectal bleeding. Different types of equipment like rigid proctosigmoidoscopy, flexible sigmoidoscopy, colonoscopy and anoscopy are designed to examine the lesions of the large intestine.

### Aim

To study the histopathology of various lower gastrointestinal tract lesions in patients presenting

with per rectal bleeding.

### Objectives

To categorize different lower gastrointestinal tract lesions leading to per rectal bleeding and assess their proportions into Nonneoplastic (that is infectious, inflammatory, idiopathic) and Neoplastic (that is benign & malignant). To correlate the histopathological findings with age, sex, site of the lesion, radiological & endoscopic findings (Wherever possible).

### REVIEW OF LITERATURE

Rectal bleeding is a common symptom, but a small number of patients consult their doctors. Patients investigated in hospital represent the 'tip of the iceberg' of all people with this symptom. Although few population-based studies have investigated this issue and very little data is available (Ellis and Thompson, 2005).

A range of colonic diseases (both benign and malignant conditions) present as per rectal bleeding. Dysplasia was first postulated to be a precursor of carcinoma in ulcerative colitis by Warren and Sommers in 1949 (Riddell *et al.*, 1983). The most detailed account of the pathology of intestinal tuberculosis was given by Hoon *et al.* in 1950. (Tandon and Prakash, 1972)

It was in 1925 that Crohn B.B *et al.* first reported carcinoma of the large bowel in a patient with a history of ulcerative colitis. Obernderfer first diagnosed carcinoid tumour as a specific entity in 1907 (Hinojosa *et al.*, 2019). In 1932 at St. Mark's hospital in London Dr Cuthbert Dukes, pathologist, first devised Dukes staging classification for colorectal carcinomas and later Gabriel, Duke, Bussey redefined the classification of Dukes in 1935.

Lower gastrointestinal tract extends from ligament of treitz to the anus, which includes part of the small intestine (jejunum and ileum), large intestine and anal canal (Standring *et al.*, 2005), of blood in the veins of the hemorrhoidal plexus is usually caused by dependency. Haemorrhoids can be presented within or outside the anus. Microscopically dilated thick-walled submucosal vessels and sinusoidal spaces, often with thrombi and adjacent haemorrhage are seen. The surface epithelium may be colorectal, anorectal transitional zone-type, squamous.

Local complications of ulcerative colitis are perforation with peritonitis and abscess, toxic megacolon, venous thrombosis and carcinoma. The current risk of neoplastic change is 2%. The risk of carcinoma is higher where the entire colon is involved; when

the disease is continuous, ongoing, long-standing and when the disease begins in childhood. (Morson, 1985)

Diverticular disease describes the condition of having diverticula, usually asymptomatic, while diverticulitis refers to inflammation of the outpouchings (Goldstein and Ahmad, 1997). The disease occurs over the age of forty years. Naturally, the incidence of diverticulosis at autopsy is higher. The disease is characteristically multiple and involves the left side of the colon. The sigmoid colon is most commonly affected (Hughes, 1969). The complications of Meckel's diverticulum include perforation, vesico diverticular fistula, ulceration, haemorrhage, intussusception, intestinal obstruction from attached bands and tumours. The ulceration is of peptic type, caused by acid secretion from the ectopic gastric mucosa and is usually in the adjacent ileum rather than in the Meckel's diverticulum itself. It may result in massive haemorrhage, particularly in children. *Helicobacter pylori* do not seem to be involved in the pathogenesis.

Most cases of intussusception are seen during the first five years of life, with over one-half occurring during the first year. This is probably related to the fact that the amount of lymphoid tissue in the ileocecal region and the degree of projection of the valve into the cecum are at their maximum during this period and that both decrease substantially after the second year. There is now general agreement that the lymphoid hyperplasia precedes and is often the cause of the intussusception rather than the result, although secondary inflammatory changes certainly occur. This lymphoid hyperplasia, which is limited to the mucosa and submucosa, is probably of viral aetiology in many instances, as indicated by the finding of intranuclear inclusion bodies in one-third of the cases and the fact that viruses (particularly adenoviruses) have often been isolated from these children. Several cases of intussusception caused by lymphoid hyperplasia in AIDS patients have been reported. (Rosai, 2011)

According to Dailey and Garret (1971), sex and age distribution of this tumour parallels that of ordinary adenocarcinoma of the rectum (Dailey and Garret, 1971). Giacchero *et al.* (1985) reported the maximum incidence in the age group of 41-50 years with male preponderance. According to them, the most common site for signet ring cell carcinoma is the rectum (55-56%). (Giacchero *et al.*, 1985)

Chowdhury *et al.* (1975) reported 15 cases of primary linitis plastica of the colon with 12 patients showing lymph node involvement and 6 with the involvement of ovaries. Hepatic metastasis which

is common in usual forms of colonic carcinoma is rare in primary linitis plastica type of carcinoma. According to them, the prognosis of these patients has been low, with a survival rate between 2 weeks to 27 months. [Chowdhury et al. \(1975\)](#); [Balthazar et al. \(1979\)](#) have shown that prognosis has been poor with a mean survival of only four months after the diagnosis has been established. ([Balthazar et al., 1979](#)) According to [Giacchero et al.](#), signet ring carcinoma has high local invasiveness. ([Giacchero et al., 1985](#))

## MATERIALS AND METHODS

The present study on the histomorphology of lower gastrointestinal tract lesions in patients presenting with per rectal bleeding was a coming two years (June 2015 to May 2017) cross-sectional study carried out in the department of pathology of a tertiary care hospital. The present study included a total of 40 cases of lower gastrointestinal tract lesions causing per rectal bleeding.

Surgical specimens of all lesions from the lower gastrointestinal tract in the form of excision or resection from patients of all age groups and both sex presenting with per rectal bleeding. Clinical data of the patients in the form of their age, sex, associated complaints with a primary complaint of per rectal bleeding, complete blood count, endoscopic findings and radiologic impressions if any were obtained from the patient hospital case sheets available directly from the wards or were obtained from the medical record section.

## OBSERVATION AND RESULTS

The present study on the histomorphological features of lower gastrointestinal tract lesions in patients presenting with per rectal bleeding was a prospective two years (June 2015 to May 2017) cross-sectional study carried out in the department of pathology of a tertiary care hospital and recorded total 40 cases. The present study included surgical specimens of all the lesions from the lower gastrointestinal tract in the form of excision or resection from patients of all age groups and both sex presenting with per rectal bleeding. In contrast, patients with all kind of bleeding disorders were excluded from the study.

In the present study, the histomorphological features of lower gastrointestinal tract lesions according to age and sex of the patient were analyzed. Of the total 40 cases, most of the lesions that are 15 cases (37.5%) of the lower gastrointestinal tract were observed in the age group 41 to 60 years fol-

lowed by 14 cases (35%) in the age group more than 60 years. Youngest patient's age was six years while the oldest patient was of 82 years old. Mean age at presentation was 56.37 years. (Table 1)

Investigations in the form of radiological imaging and endoscopic findings were available in 36 cases out of 40 (90%). In the remaining 4 cases, diagnosis of haemorrhoid was given clinically, which were then excised and sent for histopathological examination for confirmation. A radiological investigation done was in the form of mainly sigmoidoscopy in 20 cases that is (55.5%) followed by computed tomography scan (CT) in 10 cases (27.7%), magnetic resonance imaging (MRI) in 3 cases (8.3%), ultrasonography (USG) in 2 cases (5.5%) and barium enema in 1 case that is (2.7%). In all 31 malignant lesions that are in 86.11% of the lower gastrointestinal tract causing per rectal bleeding, histomorphological findings were matching with radiological imaging findings. While in remaining that is in 5 cases (2 nonneoplastic each of tuberculosis and Meckel's diverticulum, three benign that is two adenomas and one juvenile polyp) radiological findings helped to arrive at a definitive diagnosis. Histological findings were correlated with radiological findings, and the definitive diagnosis was given. (Table 2)

In the present study, the distribution of growth patterns of 31 malignant lower gastrointestinal tract lesions causing per rectal bleeding were analyzed. An ulcero proliferative pattern of growth was found in the majority that is 15 cases (48%) followed by ulcero infiltrative growth pattern in 9 cases (29%). (Table 3)

In the present study, out of a total of 40 cases of lower gastrointestinal tract lesions from patients with per rectal bleeding, 6 cases (15%) were nonneoplastic. Haemorrhoids were found to be the most common nonneoplastic lesions with 4 cases (66%) followed by 1 case (17%) each of tuberculosis and Meckel's diverticulum. (Table 4)

## DISCUSSION

The present study on histomorphology of lower gastrointestinal tract lesions in patients presenting with per rectal bleeding was a prospective two years (June 2015 to May 2017) cross-sectional study carried out in the department of pathology of a tertiary care hospital and included total 40 cases.

In the present study, histomorphological features of lower gastrointestinal tract lesions in patients presenting with per rectal bleeding were analyzed according to the age and sex of patients.

**Table 1: Age-wise distribution of cases**

Age (Years)	Number of cases	Percentage
Less than 20	3	7.5
21 to 40	8	20
41 to 60	15	37.5
More than 60	14	35
Total	40	100

**Table 2: Distribution of investigations**

Investigations	Number of cases	Percentage of cases
Sigmoidoscopy	20	55.5
CT	10	27.7
MRI	3	8.3
USG	2	5.5
Barium enema	1	2.7
Total	36	100

**Table 3: Distribution of growth pattern of malignant lesions of lower GIT**

Growth pattern	Number of cases	Percentage
Ulceroproliferative	15	48
Ulceroinfiltrative	9	29
Proliferative	5	16
Polypoidal	2	7
Total	31	100

**Table 4: Distribution of nonneoplastic lesions**

Nonneoplastic lesion	Total number	Percentage
Haemorrhoid	4	66
Tuberculosis	1	17
Meckel's diverticulum	1	17
Total	6	100

Majority of cases were from the age group of 41 to 60 years (37.5%) immediately followed by the age group of more than 60 years (35.0%). Our findings of age group were in concordance with the studies done by Shah N et al., a study of 400 cases, in which the maximum number of cases were observed in the age group of 41 to 60 years that is 131 cases (32.75%). (118) Manthini et al., a study of 102 cases, in which the maximum number of cases were observed in the age group of 41 to 60 years that is 52 cases (50.9%). (Manthini et al., 2017)

Our finding was in concordance to studies done by Shefali.H.Karve et al., a study of 159 cases, in which the maximum number of cases 55 cases (34.6%) were observed with the symptom of constipation, Ritesh Sulegaon et al., a study of 188

cases found constipation symptom in 101 cases (53.72%). (Karve et al., 2015; Sulegaon et al., 2015)

## CONCLUSION

The lesions of the lower gastrointestinal tract causing per rectal bleeding are seen more commonly in male patients with a predominant age group of above 40 years, and constipation is the most typical associated symptom in these cases. The most common cause of per rectal bleeding amongst the lower gastrointestinal tract is a neoplastic lesion. The primary cause of per rectal bleeding amongst nonneoplastic lesions of the lower gastrointestinal tract is a haemorrhoid, and male patients are commonly affected. Haemorrhoid is the commonest cause of anaemia amongst nonneoplastic lesions of the lower

gastrointestinal tract causing per rectal bleeding. Adenoma and juvenile polyp form the majority of benign lesions of the lower gastrointestinal tract causing per rectal bleeding. Malignant lesions are predominant of all neoplastic lesions of the lower gastrointestinal tract causing per rectal bleeding. Most of these are adenocarcinomas involving the rectum and sigmoid colon. Overall male preponderance is observed in these cases. Adenocarcinoma of the rectum and sigmoid colon is the commonest cause of anaemia in cases of lower gastrointestinal tract lesions presenting with per rectal bleeding.

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### Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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