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Histopathological Spectrum of Lower Gastrointestinal Tract Biopsies: Study from North India

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ABSTRACT

Introduction: The disorders of gastrointestinal tract are responsible for a great deal of morbidity and mortality. Endoscopy in combination with biopsy plays an important role in the exact diagnosis of gastrointestinal tract disorders for further management. **Objectives**: The aim of the study was to highlight the utility of colonoscopy biopsies in diagnosis of conditions affecting the lower gastrointestinal tract ranging from inflammatory to neoplastic. **Material and Method**: This was a retrospective observational study done in the histopathology department of this medical college of North India over a 1 year period. This comprises a spectrum of a total of 65 cases of lower gastrointestinal tract lesion in form of colonoscopies biopsies. A detailed demographic and clinical details regarding imaging and other biochemical investigations documented from the departmental records. Hematoxylin and Eosin-stained endoscopic biopsies of adequate size and representative areas were studied retrospectively. **Results**: Chronic nonspecific colitis was the predominant non-neoplastic lesion seen among 43% cases. Adenocarcinoma was the commonest malignant lesion contributing for 80 % of malignant lesions of lower GIT. **Conclusion:** The incidence of the non-neoplastic lesion is higher than the neoplastic lesion. The most common non-neoplastic lesion is chronic colitis. GIT endoscopy along with biopsy is an established procedure for investigating a wide range of gastrointestinal conditions.

Key Words: *Biopsies, histopathology, lower gastrointestinal tract, spectrum*

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INTRODUCTION

Gastrointestinal (GI) tract extends from oesophagus to anus, and is a common site for various pathologies ranging from non-neoplastic lesions to pre-malignant and malignant lesions. Gastrointestinal disorders are most commonly encountered in clinical practice. According to world cancer research fund international and GLOBOCON, colorectal cancer is the 3rd most common cancer in men and 2nd most common cancer in women worldwide and is 3rd most common cause of cancer related deaths [1]. IARC released on 14th December the updated Globocan 2020 with new estimates on the global cancer burden, indicating that it has risen to Million cases and 10 million cancer deaths in 2020.

Colonoscopies biopsies are now performed not only for the diagnosis of disease but also for the monitoring of the course of a wide variety of conditions and for the early detection of complications. Gastrointestinal cancers are associated with substantial morbidity and mortality. Early diagnosis is thus required to lessen patient suffering and improve disease outcome [2].

The entire colon is about 5 feet (150 cm) long, and is divided into five major segments. The rectum is the last anatomic segment before the anus. The ascending and descending colon are supported by peritoneal folds called mesentery.

The right colon consists of the cecum, ascending colon, hepatic flexure and the right half of the transverse colon. The left colon consists of the left half of the transverse colon, splenic flexure, descending colon, and sigmoid.

Cancers of the colon and rectum are the third most common type worldwide [1], [2]. Cancer of the colon is more frequent than rectal cancer: in industrialized countries, the ratio of colon to rectum cases is 2:1 or more (rather more in females) while in non-industrialized countries rates are generally similar. The aim of the study to highlight the utility of colonoscopic biopsies in diagnosis of conditions affecting the lower gastrointestinal tract ranging from inflammatory to neoplastic.

Material and Method

This was a retrospective observational study done in the histopathology department of this medical college of North India over a 1 year period. This comprises a spectrum of a total of 65cases of lower gastrointestinal tract lesion in form of colonoscopies biopsies. A detailed demographic and clinical details regarding imaging and other biochemical investigations documented from the departmental records. Haematoxylin and Eosin-stained endoscopic biopsies of adequate size and representative areas were studied retrospectively.

Results

The present study comprised 65 colonoscopy biopsies received in the department of pathology over a period of 1 year.

Table 1: Age wise distribution of gastrointestinal lesions.

Age groups	**male**	**female**	**Total no of cases**
0-20	3	5	8
21-40	20	9	29
41-60	9	6	15
61-80	10	3	13

Diarrhoea of chronic duration was the predominant clinical presentation among 33% casesRectum was the commonest site of involvement seen among 29% cases.

Table 2: Spectrum of Lesion

Sr. No.	**Lesion**	**Number of cases**	**Percentage**
01	Non Neoplastic	45	69.3
02	Benign	11	16.9
03	Malignant	09	13.8
Total		**65**	**100**

The Spectrum of lesion was given in table 2.

Table 3: **Distribution of colonoscopy lesions**

Non Neoplastic	**Total Number of Cases**
Non Specific Colitis	26
Collagenous Colitis	02
Inflammatory Bowel Disease	09
Tuberculous Inflammation	05
Inflammatory Polyp	3
Total	45
Neoplastic	**No. of cases**
Adenocarcinoma	16
Tubular Adenoma	03
Villous Adenoma with High Grade Dysplasia	01
Total	20

Chronic nonspecific colitis was the predominant non-neoplastic lesion seen among 43%cases. Adenocarcinoma was the commonest malignant lesion contributing for 80 % of malignant lesions of lower GIT.

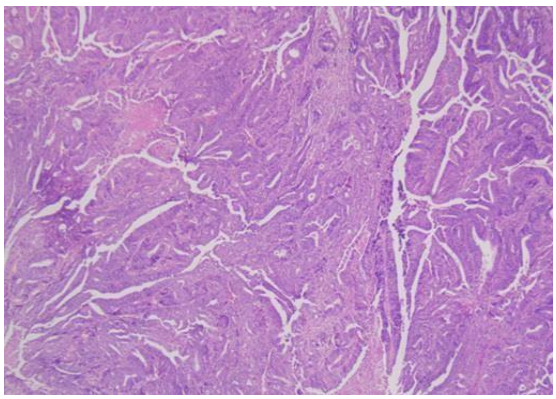

Figure 1: Histopathology showing Adenocarcinoma

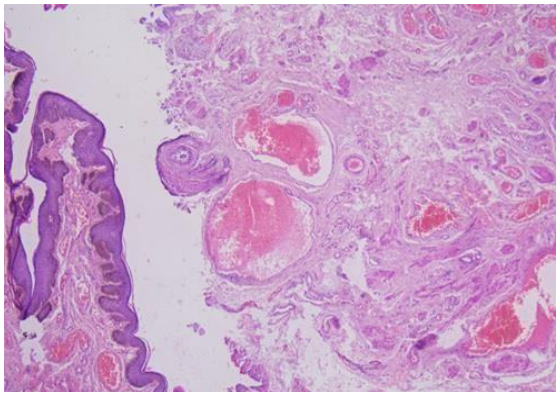

Figure 2: Histopathology showing Hemorrhoids

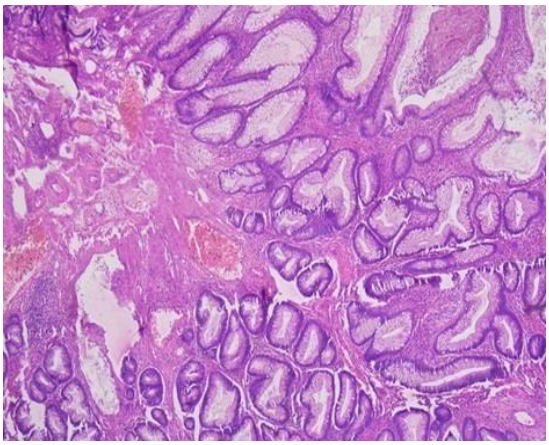

Figure 3: Histopathology showing Juvenile rectal polyp

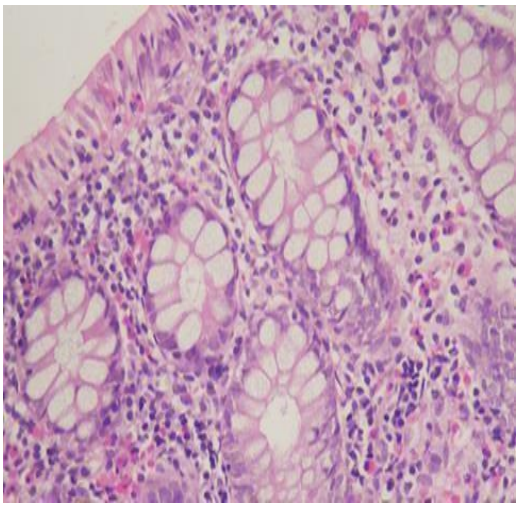

Figure 4: Non specific colitis

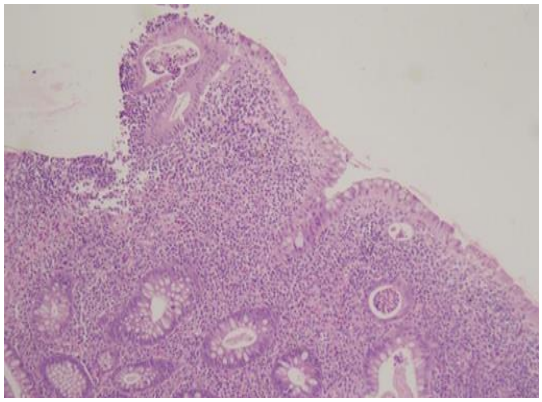

Figure 5: Ulcerative colitis (crypt abscess)

DISCUSSION

Intestinal tumours display a wide spectrum of gross and histological variations. Colonic conditions like infections, IBD, polyps and colorectal tumours are important lesions which often require colonic biopsy for their conclusive diagnosis. The LGI biopsies in the diagnosis and treatment of intestinal pathology remain as the gold standard and widely used. Screening. Acute lower gastrointestinal bleeding is less frequent than haemorrhage from the upper gastrointestinal tract, and it presents less dramatically. Patients usually complain of haematochezia, less frequently of melaena. Colonic diverticula and angiodysplasias are the main causes of acute lower gastrointestinal bleeding[3].

Colorectal cancer (CRC) is a formidable health problem worldwide. As per the GLOBOCAN project undertaken by WHO in 2008, It is the third most common cancer in men (663000 cases, 10.0% of all cancer cases) and the second most common in women (571000 cases, 9.4% of all cancer cases). Worldwide, an estimated 1.2 million cases of colorectal cancer occurred in 2008[1]. About 608,700 deaths from colorectal cancer occurred in 2008 worldwide, accounting for 8% of all cancer deaths[1].

It was observed that the incidence of lower GI lesions was higher in adult population presenting with an age range of 21 to 40 years (n=21). The age related difference could be due to the variation in risk factors among different age groups. Since the probability of malignancy increases with advancing age, all the suspicious lesions on endoscopy are subjected to biopsy for histopathological analysis.

In the present study, male preponderance was recorded in all age-groups with male to female ratio being 1.4:1 adult group. A male predisposition for GI lesions has been a consistent finding of various studies conducted in different parts of the country.

In the present study, adenocarcinomas comprise 50% of neoplastic lesions of LGI, while in the study of Abdul Kareem FB et al., (4) 87.1% cases are of adenocarcinomas.

In the present study, there was one case of Acute colitis (4.2%), characterised by neutrophilic and mononuclear cell infiltrate in the lamina propria. In the present study, among the malignant lesions adenocarcinoma of colon was the predominant lesion accounting for 85% cases of malignant lesions. Similar findings were observed by Abdulkareem et al. [4] where adenocarcinoma of colon accounted for 87% of colorectal cancer. Ahmad et al. [5] in Pakistan also found adenocarcinoma to be the predominant lesion in the lower GI tract where they found tubular adenoma in 2.6%, villous adenoma in 0.5% and Tubulovillous adenoma in 3.1% cases of study population.

In the present study, the incidence of colorectal cancers was more in males than in females, with a male: female ratio of 1.2:1. This finding was consistent with sex incidence in the studies done by Mostafa G et al and Newland RC et al[6]. Most colorectal carcinomas are located in the sigmoid colon and rectum, but there is evidence of changing distribution in recent years, with an increasing proportion of more proximal carcinomas [7].

Among the benign lesion in our study, 2.9% cases of study population were tubular adenoma, 2.4% cases each of villous adenoma and Tubulovillous adenoma. These findings are similar with findings of Umana et al[8].

The lower GI lesions in present study showed a variable spectrum comprising of non- neoplastic, benign and malignant lesions[9]. Adenocarcinoma was most only malignancy encountered in Ileum. Most common lesion on colonic biopsy in adults was lymphocytic colitis followed by non-specific colitis. 4 cases of Tubular adenoma (2 each in adults and elderly group) were also seen. Ventakesh, et al. reported non-specific colitis as commonest lesion on colon biopsy [10], this finding was discordant with our study.

CONCLUSION

Colonoscopy Biopsy is an established procedure for lower GI condition. Due to tiny biopsy material limitations in diagnostic interpretation are often encountered. Multiple biopsies from abnormal appearing mucosa on endoscopy may aid with definitive diagnosis and also reduceschances of error. In case of dubious lesions, biopsy results served to correct mistaken endoscopic findings.

Hence, we concluded that endoscopy in combination with biopsy is a powerful diagnostic tool in detecting as well monitoring disease course and patient outcome. In addition, it has the advantage of being cost-effective and can be incorporated easily in routine diagnostic protocols.

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