*Original Research Article*

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# Clinicopathological Study of Lower Gastrointestinal Tract Lesions in a Rural Population

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**Abstract**

*Context*: The lower GI tract is a site for various infectious, inflammatory, idiopathic and polypoidal conditions along with neoplasms. *Aims:* To study the spectrum, histological patterns and clinico-pathological aspects of various lower gastrointestinal tract lesions in rural population and to compare the findings with data available in existing literature. *Settings and Design:* This is a prospective and observational study of 70 patients having lower gastrointestinal tract lesions, studied over a period of 18 months from Jan 2016 to June 2017 in Department of Pathology of a rural hospital. *Methods and Material:* We received samples in form of biopsies and intestinal resection specimens, which were processed and stained to make slides to reach to a definitive histopathological diagnosis. *Statistical Analysis Used:* Data was analysed with the help of simple statistical tables and charts. *Result & Conclusions:* Our study throws a light on the pattern of lower gastrointestinal tract lesions seen in our institute.

**Keywords:** Lower Gastrointestinal Tract Lesions; Histopathological Diagnosis; Non-Neoplastic; Neoplastic.

## Introduction

Today, gastrointestinal pathologyis acceptedas one of the largest sub-specialities within general histopathology. Gastroenterology is a rapidly developing and expanding branch of medicine, and histopathology plays an important role in the diagnosis and treatment [1]. The lower GI tract is a site for various infectious, inflammatory, idiopathic and polypoidal conditions along with neoplasms [2,3]. Hirschsprung disease, acute and/or chronic inflammatory conditions, benign or malignant polyps, inflammatory bowel diseases and benign and malignant neoplasms are among the few conditions which can be encountered in the lower GI tract predominantly [4]. The incidence of colorectal cancer is said to be on the increase in developing countries [5]. It has been shown that targeted prevention and early detection programs could help reverse the increasing trend of colorectal cancer in most developing countries [6]. However, the primary aim of GI pathology is to provide essential diagnostic and prognostic information allowing physicians and surgeons the best clinical management of the individual patient [7]. This stimulates us to undertake this study and correlate GI pathology with clinical findings.

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## Materials and Methods

The prospective study of 70 patients having lower gastrointestinal tract lesions were included in this study over a period of 18 months from Jan 2016 to June 2017 in Department of Pathology of a rural hospital. The materials were collected in the form of biopsy and resected specimens of lower gastrointestinal tract along with the clinical profile of the patient with supportive investigations. Gastrointestinal biopsies from below the second part of duodenum were included in the study. Superficial biopsies, biopsies from appendix and biopsies with artefacts were excluded from the study. This was correlated with gross and histopathological examination of respective surgical specimens. For histopathological study, paraffin embedded sections stained by Hematoxylin and Eosin stain (H and E). Special staining like Periodic acid –Schiff (PAS), Ziehl-

Neelsen (ZN)etc. was used wherever necessary. Immunohistochemical analysis was used whenever required.

The histopathological diagnoses were categorised as non-neoplastic and neoplastic lesions. The results and observations were organised and interpretated in light of clinical and pathological findings of various lesions of the gastrointestinal tract and results were compared with other researchers.

## Results

The present study comprises histopathology of 70 lower gastrointestinal tract lesions studied in the Department of Pathology in rural hospital over a period of 18 months. (January 2016 to June 2017). Amongst 70 cases, 17 cases were neoplastic lesions and 53 cases were non neoplastic lesions. Table 1 shows broad categorisation of lesions.

Thus, it observed that inflammatory lesions constituted most of the cases (71.43%), benign and malignant lesions accounted for only 10% and 14.29% of all lower gastrointestinal tract lesions respectively. Out of 17 cases of lower gastrointestinal tract tumours, malignant lesions constituted 14.17% cases, while benign lesions constituted 58.82%. Table 2 shows lesion wise and gender wise distribution of cases.

Thus, we observe that perforation due to obstructive pathology is the most common inflammatory lesion accounting to 24.29% of cases of lower gastrointestinal tract, whereas juvenile rectal polyp is the most commonly occurred benign neoplastic lesion and adenocarcinoma being the most common malignant neoplastic lesion.

Amongst 70 cases, 50 were in males and remaining 20 cases were females, which shows a male predominance in lesions of lower gastrointestinal tract.

**Table 1:** Broad categorisation of lesions

| | Non-neoplastic lesions | | | Total | Neoplastic lesions | | Total |
|---|---|---|---|---|---|---|---|
| | Congenital | Cystic | Inflammatory | | Benign | Malignant | |
| No. of cases | 2 | 1 | 50 | 53 | 7 | 10 | 17 |
| Percentage | 2.86 | 1.43 | 71.43 | 75.71 | 10 | 14.29 | 24.29 |

**Table 2:** Lesion-wise and gender wise distribution of cases

| Lesions | No of cases in males | No of cases in females | Total No of cases | Percentage |
|---|---|---|---|---|
| Perforation/Obstruction | 10 | 7 | 17 | 24.29 |
| Stoma | 1 | 0 | 1 | 1.43 |
| Tuberculosis/Other infections | 1 | 1 | 2 | 2.86 |
| Large intestinal polyp | 1 | 0 | 1 | 1.43 |
| Adenocarcinoma colon/rectum | 4 | 2 | 6 | 8.57 |
| Fistula | 8 | 4 | 12 | 17.14 |
| Atresia | 1 | 0 | 1 | 1.43 |
| Hemorrhoids | 2 | 0 | 2 | 2.86 |
| Rectal polyps | 4 | 0 | 4 | 5.71 |
| Gangrene | 5 | 2 | 7 | 10 |
| Intussusception | 1 | 0 | 1 | 1.43 |
| Diverticulum | 4 | 1 | 5 | 7.14 |
| Mesenteric cyst | 1 | 0 | 1 | 1.43 |
| Intraluminal lipoma | 1 | 0 | 1 | 1.43 |
| Persistent Vitellointestinal duct | 1 | 0 | 1 | 1.43 |
| Anal carcinoma | 1 | 2 | 3 | 4.29 |
| Volvulus | 1 | 1 | 2 | 2.86 |
| Inadequate biopsy | 1 | 0 | 1 | 1.43 |
| Malignant GIST* | 1 | 0 | 1 | 1.43 |
| Synovial sarcoma | 0 | 1 | 1 | 1.43 |
| Total | 49 | 21 | 70 | 100 |

*Gastrointestinal stromal tumour

**Table 3:** Age, sex and site wise distribution of lesions

| Age | Small intestine | | Large intestine | | Rectum | | Anal canal | | Total | Percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | | |
| 0-10 | 4 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 9 | 12.86 |
| 11-20 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 5 | 7.14 |
| 21-30 | 3 | 4 | 1 | 0 | 1 | 0 | 2 | 1 | 12 | 17.14 |
| 31-40 | 3 | 1 | 2 | 0 | 0 | 0 | 5 | 1 | 12 | 17.14 |
| 41-50 | 3 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 8 | 11.43 |
| 51-60 | 6 | 1 | 1 | 0 | 0 | 0 | 3 | 3 | 14 | 20 |
| 61-70 | 5 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 10 | 14.29 |
| Total | 25 | 10 | 9 | 3 | 5 | 0 | 12 | 6 | 70 | 100 |

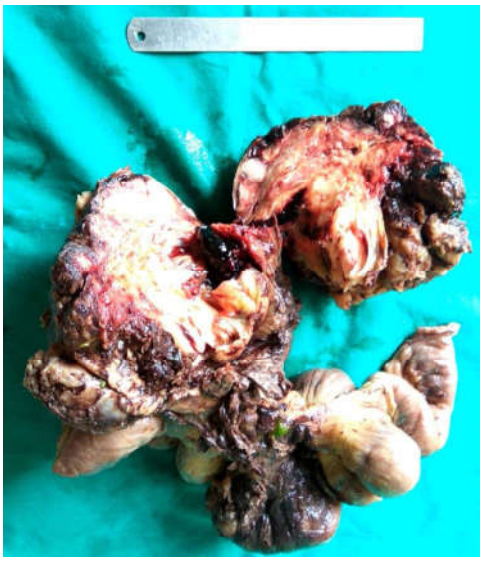

**Fig. 1:** Mesenteric synovial sarcoma gross-Received, an intestinal segment of 70 cm length with an attached mesenteric mass of size 11x10x5cm.It was ill defined, globular, and firm in consistency with hemorrhagic and necrotic areas in it on cut section. A single lymph node of 0.5 cm was also identified.

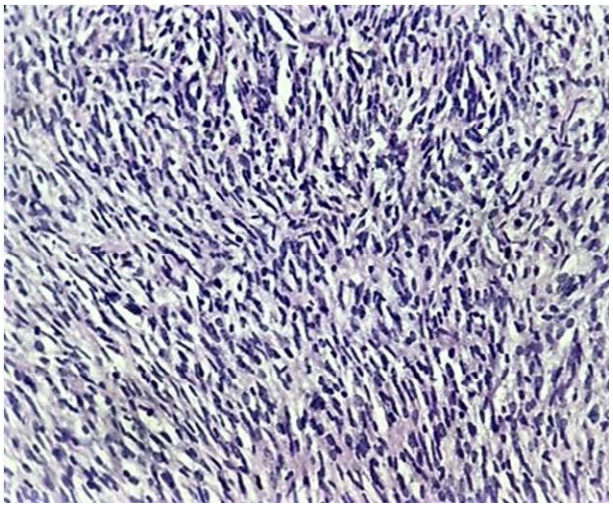

**Fig. 2:** Mesenteric synovial sarcoma microscopy-Section showed tumor tissue composed of oval to spindeloid cells with hyperchromatic spindle shaped nuclei with prominent nucleoli. The tumor cells were arranged in fasicular pattern with formation of hypocellular areas. Section also shows evidence of mitosis, focal necrotic areas and haemorrhagic areas

Table 3 shows the age, sex and site wise distribution of lesions which occurred in present study.

## Discussion

The common age group involved in our study was the 4th to 6th decade of life. In our study males outnumbered the females with male to female ratio of 2.33:1. Around 60% of our patients had bleeding PR and malena as their common presenting symptom. Other common presenting symptoms were altered bowel habits, pain in abdomen, lump in abdomen, weight loss and anaemia. A minority of patients presented with clinical features of sub-acute intestinal obstruction or distension. Majority of the patients in our study were non-vegetarians.

Amongst benign non neoplastic lesions, inflammation due to perforation is the most commonly occurred pathology, followed by fistula-in-ano. In our studies as well as in studies carried out by other workers, the presenting symptoms of perforative lesions were pain in abdomen and fever. The M:F ratio for inflammatory lesions due to perforation in our study was found to be 1.43:1 which is comparable to studies carried out by Wani RA et al [8](3:1), Muhamad S. et al [9] (2:1), and Thakur et al [10] (1.2:1). For cases of fistula in ano, M:F ratio of our study is found to be 2:1, which is comparable to studies by Sainio P. et al [11] (2.3:1) and Thakur et al [10] (1.8:1). The mean age of patients presenting with perforative lesions in our study is 44.65 and for fistula in ano is 37.7 which is comparable with findings in studies carried out previously by other workers. 7 and 5 cases of gangrene of intestine and diverticular diseases (diverticulosis) respectively of small intestine were found, which were next common benign non neoplastic lesions found in the present study. Both of these show clear cut male predominance with M:F ratio of 2.5:1 and 4:1 respectively. Variety of other benign non neoplastic lesions included intestinal ulceration due to infective etiology, stoma site inflammatory lesion, intestinal

atresia, haemorrhoids, intusseseption, volvulus and persistent vitellointestinal duct. A single biopsy was labelled as inadequate, because the tissue piece received was very tiny to give a definitive diagnosis.

Amongst benign neoplastic lesions, in the present study of 4 cases of juvenile rectal polyps, the most common symptom was per rectal bleeding. All the polyps were found in rectum. Roth SI et al. [12] and Dajani YF et al [13] , found rectum as the most common site for juvenile polyps. Histological study showed cystically dilated glands, few of which show mucous in their lumen. Stroma was oedematous and showed infiltration by mononuclear cells. The glands were devoid of atypical features. Our findings with respect to age, M:F ratio, site and symptoms, match with the findings of previous studies by Roth SI et al [12], Dajani YF et al [13] and Tony J and Harish K et al [14]. Other benign neoplastic lesions included a case of mesenteric cyst, a case of intraluminal lipoma, and a single case of large intestinal hyperplastic polyp.

Amongst malignant neoplastic lesions, in our study, carcinoma colon outnumbered carcinoma rectum, which is consistent with findings of other studies. The carcinoma of left sided colon exceeds the number of cases of carcinoma right sided colonic cancers which was consistent with world's literature and other Indian studies [15].

Adenocarcinoma was the commonest histopathological type observed amongst all colorectal cancers in the present study as well as in various series of studies in literature. In Ahmad et al (2005) [16] study, 54.12% cases of colorectal cancer were fungating and 45.9% were infiltrative; while in the present study, exophytic carcinomas were the commonest type (55.6%) seen, followed by endophytic (24.4%), polypoid (14.3%) and annular (5.7%) type. Frequency of exophytic and endophytic growths approximately matches well with study of Ahmad et al. Histopathologically, tubular adenocarcinoma was the commonest type, followed by mucinous adenocarcinoma and basaloid adenocarcinoma, which is comparable to the findings of Thakur et al. Common presenting signs and symptoms of cancer of colon included pain in abdomen and altered bowel habits. Bloody diarrhoea was commonly seen in right sided lesions. Obstructive manifestations occurred more commonly in left sided lesions. Bleeding either in the form of visible or occult blood was less commonly seen finding. Presenting signs and symptoms observed in cases of present study correspond well with Falterman et al [17] study and Thakur et al.

M:F ratio of malignancies in present study is 1.2:1, which is comparable to findings of other studies, which show a ratio of 1.1:1 by Kamal et al(2001) [18] and 1.4:1 by Abdulkareem et al. (2009) [19]. Sex factor usually plays an important role in gastrointestinal tract malignancies which could be explained by changing life style, dietary habits, increased literacy rates, increasing awareness about health problems, earlier seeking of medical advice, availability of modern diagnostic facilities and increased life expectancy. Moreover, it is a well-known fact that the excess of meat intake, increased calorie intake and lack of physical activity are potential risk factors for colonic malignancy.

We also came across a rare case of primary monophasic synovial sarcoma arising in the mesentery. A 26-year-old woman presented with a palpable abdominal mass. On gross, we received a mass attached to the serosal aspect of the jejunal mesentery. On microscopic examination, the tumour was composed of oval to spindeloid cells arranged in fascicular pattern with formation of few hypocellular areas and without epithelial components. The cells were positive for vimentin and MIC-2 with focal positivity for cytokeratin, whereas negative for CD117/CKIT, S-100 and Desmin. Because mesenteric monophasic synovial sarcoma is extremely rare and many cases display histologic findings that overlap with those of more frequently involved tumors such as hemangiopericytoma and gastrointestinal stromal tumor, there is a chance of making an incorrect diagnosis that can result in an inappropriate treatment.

## Conclusion

In conclusion, our study throws a light on the pattern of lower gastrointestinal tract lesions seen in our institute. Histopathology is regarded as the most sensitive and specific diagnostic method for the early detection of gastrointestinal tract cancer. It plays an important role in the diagnosis of gastrointestinal neoplasms as well as non-neoplastic lesions. So this study emphasises the need for early diagnosis of the disease through histopathology, which when correlated clinically will help the surgeon/clinician to implement the appropriate treatment and improve the survival of the patients.

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