

A RETROSPECTIVE STUDY OF HISTOMORPHOLOGICAL SPECTRUM OF INTESTINAL LESIONS AT A TERTIARY CARE CENTER

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ABSTRACT:

Introduction:Anus to the mouth, all parts of the digestive tract are susceptible to the widespread gastrointestinal (GI) illnesses. It is possible for diseases to be the only manifestation of self-limiting clinical problems such as diarrhoea, constipation, and stomach pain. On the other hand, some illnesses, like cancer, can be fatal. For a follow-up diagnosis and to continue treating the patient, a biopsy is required.To validate and classify GI illnesses, histopathologic examination should be performed following any surgical procedure.

Objectives:The purpose of this study was to identify the different types of lower gastrointestinal tract lesions and the age and sex groups that are most commonly affected.

Methodology: This was a retrospective observational study conducted in the Department of Pathology at Government medical college, Ananthapuramu, Andhra Pradesh, India. The study period was of 5 years from July 2019 to June 2023. The hematoxylin and eosin stain slides of the lesions of the lower GI tract received were studied and the lesions were diagnosed on their histomorphology. According to organ, age and sex, the lesions were categorized. The data were entered in Microso excel and the percentage value was calculated.

Results: A total of 112 intestinal specimens were received over the period of 5 years from July 2019 to June 2023. Large intestinal lesions (57.14%) were more common than small intestinal lesions (42.86%). The maximum number of cases were in the age group of 51–60 years, i.e., 35 cases (31%). Male gender was predominant, accounting for 73 cases (65%), and females were 39 cases (35%)., 81 cases (72%) were non-neoplastic and 31 cases (28%) were neoplastic. In our study among malignant lesions moderately differentiated adenocarcinoma (9 cases) was the most common histopathological diagnosis

Conclusions This study focuses the role of histopathological identification in early diagnosis of the disease so that the survival rates in such cases will be increased.

INTRODUCTION

Gastrointestinal (GI) diseases are highly prevalent in population in India and carry heavy economic and social consequences.[1] Gastrointestinal tract lesions are the most common pathology seen in routine clinical practice. These include a varied group of disorders which are broadly classified based on symptoms as those of upper gastrointestinal disorders and lower gastrointestinal disorders.[2] Lower gastrointestinal tract lesions are a significant source of morbidity and mortality. Infections, vascular problems, ulcers, different inflammatory illnesses, and neoplasms can all affect lower GIT. [3]

The small intestine and large intestine constitutes majority of the gastrointestinal tract and are the sites for broad array of diseases.[4] The diseases of small intestine can be broadly classified as following: developmental abnormalities, muscular and mechanical disorders, inflammatory disorders, vascular disorders, epithelial tumors, non epithelial tumors and tumor-like lesions.[5] South Asian countries have a relatively low incidence of epithelial tumors. [3]

The definitive diagnosis of gastrointestinal lesions largely depends on the histopathological confirmation and is one of the basis for planning proper treatment regimen.[6] Histopathology is regarded as the most sensitive and specific diagnostic method (gold standard) for the early detection of GIT lesions (especially malignant cases) and plays an important role in the diagnosis and therefore aids in their early management.[7]

Polyps of gastrointestinal tract may be classified as non-neoplastic or neoplastic. The non-neoplastic polyps include inflammatory polyps, hyperplastic polyps, hamartomatous polyps and lymphoid polyps. Neoplastic polyps are broadly called as adenomas. Familial polyposis syndromes are rare autosomal dominant syndromes with a high propensity for malignant transformation. They usually present with multiple polyps and show early conversion to malignancy.[8]

Gastrointestinal malignancies account for 12.9% of all malignant diseases. They continue to be the second leading cause of cancer related deaths in the developed world.[9] Colorectal cancer is the 3rd leading cause of death in both men and women.[10] The disease is frequently diagnosed in age range 65-74 years and survival rate in US is 66.9%. Developing countries have lower survival rates. In India, survival rate is only 37%. [11]

As there was no published literature from this area of Southern India, the present study reports the nature of lower GIT lesions based on histopathology in our local rural population. The objectives were to look at the age and gender distribution, the sites and the types of lesions affecting the lower GIT.

AIMS & OBJECTIVES:

To study histopathological spectrum of lesions in the intestine.

To study the age and sex distribution of these lesions.

MATERIAL AND METHODS :

This was a retrospective observational study conducted in the Department of Pathology at Government medical college, Ananthapuramu, Andhra Pradesh, India. The study period was of 5 years from July 2019 to June 2023. The study had no ethical issues. Lesions of the third part of duodenum, jejunum, ileum and ileocaecal junction, colon, colorectal junction and Rectum were included in the study. All samples of appendix, anal lesions and inadequate and poorly preserved biopsy specimen were excluded from the study.

Sample Collection

A total of 112 surgical specimens and biopsy samples from the lower GIT were received from the Department of pathology during the study period. The biopsies were received in formalin containers along with the histopathology test requisitions. Demographic data such as age, gender, duration of symptoms of the patients were noted from the histopathology requisition forms. Resected specimens and endoscopic biopsies of small intestine and large intestine were preserved in 10% formalin and fixation done, processed for paraffin sectioning and sections were cut at five micron thickness and were stained by Haematoxylin and Eosin (H&E). The stained slides were examined and histomorphological patterns were studied. Special stains such as PAS and mucicarmine were also done whenever indicated. Immunohistochemistry studies were not done. Tumors were diagnosed according to the recent WHO classification (2019).

Statistical analysis

For statistical analysis, the data was entered into excel sheets and percentages and ratios were calculated.

RESULTS:

Total of 112 intestinal specimens were received over the period of July 2019 to June 2023. The site wise distribution is shown in Table:1. Large intestinal lesions (57.14%) were more common than small intestinal lesions (42.86%). Maximum number of cases were in age group of 51- 60 years i.e., 35 cases (31%). Male gender was predominant accounting for 73 cases (65%) and females were 39 cases (35%), M:F-1.8 : 1.

Table1:Sitewisedistributionofintestinalspecimens

Siteof lesion	No.ofbiopsies	Percentage
Smallintestine	48	42.86%
Largeintestine	64	57.14%
Total	112	100%

As shown in Figure 1, Out of 112 cases , 81 cases (72%) were non-neoplastic and 31 cases (28%) were neoplastic.

Figure 1: Distribution of specimens according to the nature of lesion

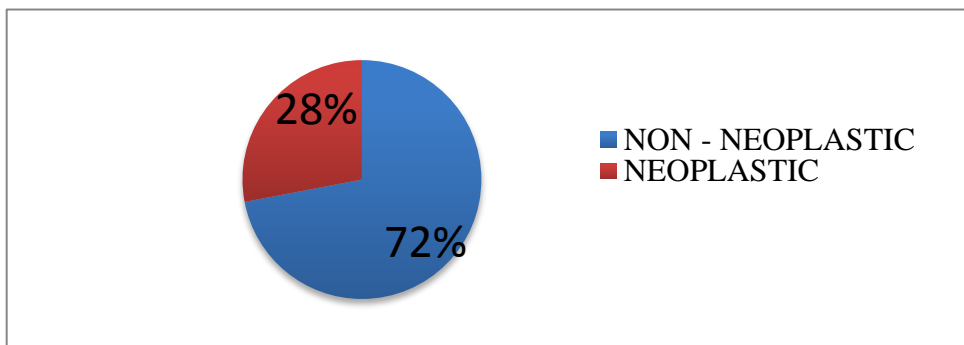
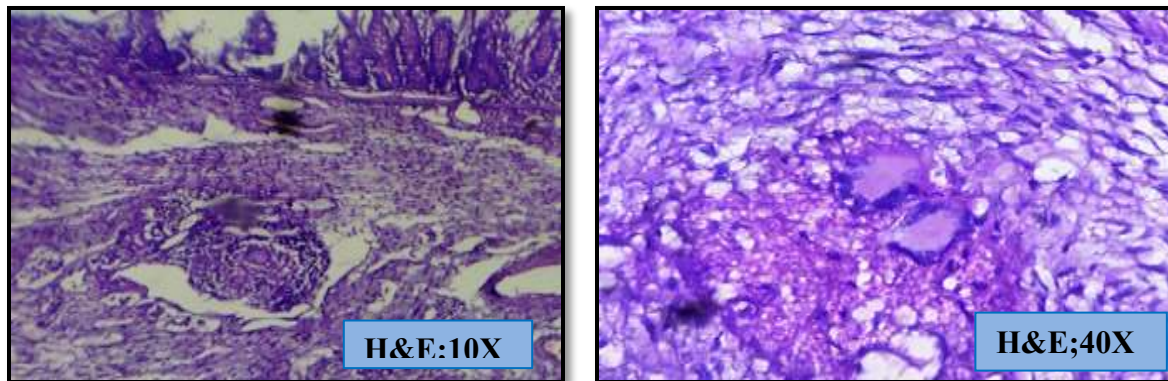


Table 2 shows distribution of various non neoplastic lesions of lower gastrointestinal tract, among which non specific enteritis was the most common lesion seen in 58 cases, next common lesion being granulomatous lesion seen in 10 cases shown in figure 2.

Table2:Distributionof Non neoplasticLesionsofLowerGIT.

Type of lesion	No.of cases
Non specific enteritis	58
Granulomatous lesion of the intestine	10
Ischemic colitis	04
Gangrenous bowel	04
Crohn’s disease	03
Hirschsprung disease	02
Total	81

Figure 2:Granulomatous lesion of the intestine



Microscopy show well formed granulomas in submucosal and muscularispropria layer consisting of lymphocytes , macrophages , epitheloid cells and langhans type of giant cells.

As shown in table 3, total number of neoplastic lesions reported in our study were 31.Among these benign lesions were seen in 09 cases and malignant lesions seen in 22 cases.

Table3:Distributionofneoplasticintestinallesionsaccordingtonature

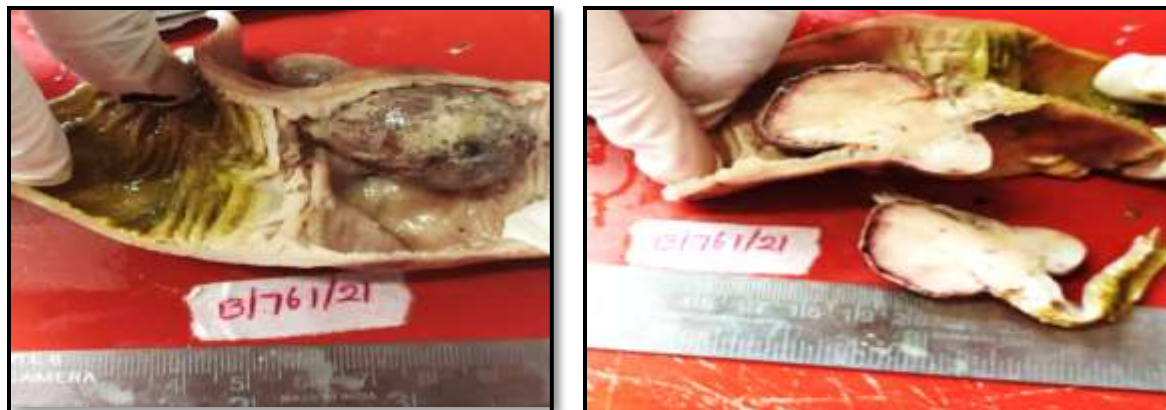
Natureofneoplasticlesion	No.ofcases	Percentage
Benign	09	29.03%
Malignant	22	70.97%
Total	31	100%

Among the benign lesions of the lower GIT, inflammatory polyps was most commonly seen in 05 cases(Table 4) among which one was Inflammatory myofibrblastic polyp seen in the small intestine as shown in figure 3.

Table4–Distributionofbenign lesions of LowerGIT.

Type of lesion	No.ofcases
Inflammatory Polyp	05
Adenomatous Polyp	03
Leiomyomatous Polyp	01
Total	09

Figure 3: Inflammatory myofibroblastic polyp



Cut section of small intestine : Show grey white to grey brown polypoidal mass measuring 4.5×3×3 cm protruding into the lumen of small intestine which is well circumscribed, grey white solid homogenous.

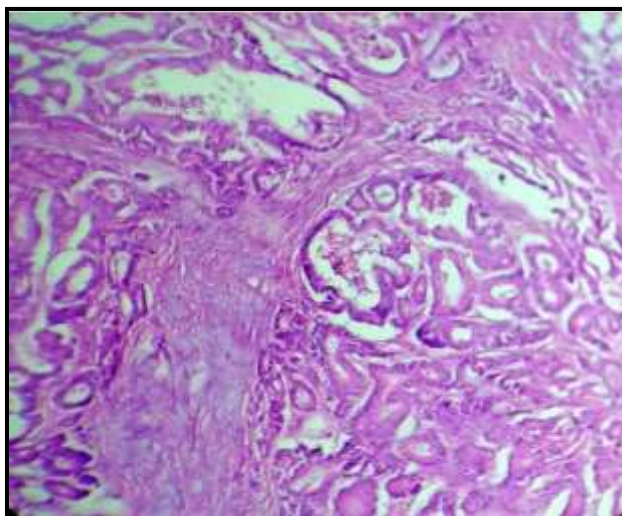
In our study moderately differentiated adenocarcinoma (9 cases) as shown in table 5 was the most common histopathological diagnosis followed by well differentiated adenocarcinoma seen in 06 cases (Figure 4 and 5)

Table5–DistributionofHistologicalTypesofCarcinoma

Histologic type	Number
Well differentiated adenocarcinoma	06
Moderately differentiated adenocarcinoma	09
Poorly differentiated adenocarcinoma	03
Mucinous adenocarcinoma	02
Signet ring cell adenocarcinoma	01
Total	22

Figure 4& 5: Well differentiated adenocarcinoma of colon

C/s of colon shows annular growth



H&E 10X: Sections show well formed glands invading the muscularis propria and serosa layers.

DISCUSSION:

In our study maximum number of cases were in the age group of 51- 60 years i.e., 35 cases (31%) but in the study done by Dr. Irbinder Kaur Bali et al., [12] it was observed that the incidence of lower GI lesions was higher in younger age 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.

In the present study, male preponderance was recorded in all age-groups with male to female ratio being 1.8:1 which is similar to the study done by Dr. Vertika Sharma et al [3]. A male predisposition for GI lesions has been a consistent finding of various studies conducted in different parts of our Country. But In the study done by Laxman Banstola et al [13] conducted in Nepal, females were more commonly involved which is different to our study. The reason might be because of variations in the risk factors, racial and geographical factors in the study population. Large intestinal lesions (57.14%) were more common than small intestinal lesions (42.86%) in our study Which is in consistent with the study done by Pooja Patel et al [14]. In the present study 81 cases (72%) were non-neoplastic and 31 cases (28%) were neoplastic. These findings were similar to the study done by Vertika Sharma et al [3] and Shah N et al. [11] but in the study done by Ritesh Sulegaon et al., [15] neoplastic lesion [38 cases (30.65%)]s were more common than non neoplastic lesions [77 cases (62.09%)]. The reason might be because their study included only the lesions from the large intestine and anus.

In our study among the non neoplastic lesions, non-specific enteritis (58 cases, n=112) was observed as the commonest histologic finding followed by granulomatous lesion of the intestine (10 cases, n=112). In spite of good progress in treatment and prophylaxis, tuberculosis still poses a major health problem globally. The precise incidence of abdominal tuberculosis is not known due to lack of random samples of population studied. The reported incidence varies from 0.02- 5.1% in various autopsy series [16].

Among the neoplastic lesions, inflammatory polyp (05 cases) was the most frequent diagnosis followed by adenomatous polyp (03 cases). Tony J and Harish K et al., found that in Southern India adenomatous polyps were the most common polyps (79.8%) in the age group of 23-82 years with M:F ratio of 2.5:1. [17] Polyps of the lower GIT include two major types – serrated polyps and neoplastic adenomatous polyps. Serrated polyps further include hyperplastic polyps, traditional serrated adenomas and sessile serrated adenomas.

Neoplastic adenomatous polyps include the tubular adenomas, tubulovillous adenoma and villous adenoma. Also many syndromes are associated with polyps in the intestinal mucosa – eg. Peutz –Jegher syndrome, Cowden disease, Juvenile polyposis, Familial adenomatous polyposis, Cronkite-Canada syndrome etc. Serrated adenomas are precancerous lesions which have CpG island methylator phenotype (CIMP), microsatellite instability (MSI) and exhibit mutations of BRAF gene. [2]

Adenocarcinoma is the most common malignancy arising in the colorectal region [4]. Ritesh Sulegaon et al [15] in their study found moderately differentiated adenocarcinoma as the most common type which is similar to our study as shown in table 9.

Table 6: Comparison of distribution of histologic types of adenocarcinoma

Histologic type	Our study	Ritesh Sulegaon et al [15]
Well differentiated adenocarcinoma	06	11
Moderately differentiated adenocarcinoma	09	35
Poorly differentiated adenocarcinoma	03	01
Mucinous adenocarcinoma	02	11
Signet ring cell adenocarcinoma	01	03
Total	22	61

A major limitation of this study is the small sample size and as the study is hospital-based it may not represent the true incidence of the disease in the community. A community study is therefore desirable as this is usually more representative.

CONCLUSION:

The clinical features and radiological findings of the lesions of lower GIT are non-specific in various diseases and morphological identification helped to diagnose the type of lesion for early diagnosis. The treatment will be more precise when the disease can be identified at its early stage. A careful study of adenomatous polyps is needed in view of the potential for malignant transformation. Genetic studies are needed to establish predictive and prognostic markers for malignant transformation of adenomatous polyps. Though surveillance programs have been framed, it is imperative to establish cost effective screening guidelines so as to detect the lesions earlier. This study focuses the role of histopathological identification in early diagnosis of the disease so that the survival rates in such cases will be increased.

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