

Study of Histopathological Findings in Patient with Small and Large Intestinal Lesions at Tertiary Care Hospital

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Abstract

Introduction: Nearly 75% of the total length of the gastrointestinal tract is occupied by small intestine (duodenum, jejunum and ileum) and it constitutes more than 90% of the mucosal surface area and the sites for broad array of diseases. The large intestine is composed of 4 parts. It includes the cecum, ascending colon, transverse colon, descending colon and sigmoid colon. The large intestine performs an essential role by absorbing water, vitamins, and electrolytes from waste material. Clinical and radiological findings of these lesions are non-specific therefore, biopsy is required for diagnosis of lesion. Thus, the present study was conducted to find out the profiles of various histological lesions of the small intestine and large intestine.

Methods: This was a retrospective study conducted in the Department of Pathology, C.U. Shah medical college, Surendranagar on received specimen with intestinal lesions over a period of five year.

Results: Of the total of 100 cases, 58 were from small intestine, 27 were from large intestine and 15 from Meckel's diverticula there were 63 males and 37 females with a male to female ratio of 1.8:1. 24 lesions were neoplastic, while 76 non-neoplastic. The majority of lesions had inflammatory pathology, which constituted 76 cases in all. 10 lesions were malignant and 14 were benign. The most common age group for non-neoplastic lesion was 51-60 years in male and in female; it was 61 -70 years. The most common age group for benign lesion in male was 0-30 year and in female it was 21-60 years. The most common age group for malignancy was 51-60 years in both males and females in the present study. Male to female ratio for malignancies is 2.3:1.

Conclusions: In developing countries, infective etiology remains dominant cause of intestinal obstruction and perforation. Intestinal resection in older age group demands effective preventive measures in this part of world to prevent morbidity and mortality. Histopathological examinations of resected intestine provides definite evidence of underlying etiology guiding better healthcare planning for preventive measures.

Keywords: Neoplastic, non-neoplastic, small intestine, large intestine.

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Introduction

Nearly 75% of the total length of the gastrointestinal tract is occupied by small intestine (duodenum, jejunum and ileum) and it constitutes more than 90% of the mucosal surface area and the sites for broad array of diseases. [1] The large intestine is approximately 5 feet long, making up one-fifth of the length of the gastrointestinal (GI) tract. [2] The large intestine is composed of 4 parts. It includes the cecum and ascending colon, transverse colon, descending colon, and sigmoid

colon. [3] The large intestine performs an essential role by absorbing water, vitamins, and electrolytes from waste material. [4] Various lesions affect the intestinal tract e.g. Congenital anomalies, infections, polyps, hamartomatous lesions, inflammatory lesion (most common ulcerative colitis and Crohn's disease), benign and malignant neoplasms. The diseases of GIT are more common than any other systems of the body. [5] Inflammation of the small intestine is relatively

more common than tumors. Septicemia, ulceration, perforation peritonitis are complications which arise from all over parts of the GI tract. Congenital anomalies of the intestine are more significant cause of morbidity in children than adults. Meckel’s diverticula are common congenital abnormality of small intestine caused by incomplete obliteration of the vitelline (omphalomesenteric) duct. Most of the patients with Meckel diverticula are asymptomatic. Epithelial tumors are major cause of morbidity and mortality [8]. Malignant tumors of the small intestine make up less than 1.0 per 100,000 population and thus are rare. The incidence rates of colon cancer in eight population registries vary from 3.7 to 0.7/100,000 among men and 3 to 0.4/100,000 among women.[8] The significant rise in the incidence of these tumors is an important epidemiologic finding. Clinical and radiological findings of these lesions are non-specific therefore, biopsy is required for diagnosis of lesion. Thus, the present study was conducted to find out the profiles of various histological lesions of the small intestine and large intestine.

Materials and Methods

This was a retrospective study conducted in the

Department of Pathology, C.U. Shah medical college, Surendranagar on received specimen with intestinal lesion over a period of five year (January 2019 to December 2023).

Resected specimens of small and large intestine were preserved in 10% neutral buffered formalin and fixation done, processed for paraffin sectioning and stained by routine hematoxylin and eosin stains. Special stains like Ziehl Neelsen for AFB and PAS were done wherever required. All sections were examined and various histopathological diagnosis were noted.

Statistical Analysis

After collecting primary data, statistical analysis was done in the form of percentage and proportion was represented in tables.

Results

Of the total of 100 cases, 58 were from small intestine, 27 were from large intestine and 15 from Meckel’s diverticulum. The site wise distribution is shown in Table: 1. small intestinal lesions (58%) were more common than large intestinal lesions (27%).

Table 1: Site Wise Distribution

Site of Lesion	No. of Biopsy/ Specimen
Small Intestine	58
Large Intestine	27
Meckel’s Diverticulum	15
Total	100

There were 63 males and 37 females with a male to female ratio of 1.8:1. (Table 2).

Table 2: Gender Wise Distribution

Gender	No. of Biopsy/ Specimen
Male	63
Female	37

Non-neoplastic lesions (76%) were more common than neoplastic lesions (24%) in both small and large intestines.

As show in fig 1 non neoplastic lesion (53%) were more in small intestine where neoplastic(8%) lesion were more in large intestine.

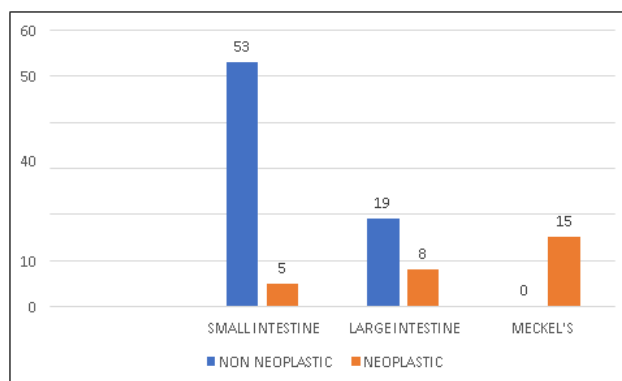


Figure 1: Spectrum Associate to Nature of Lesion

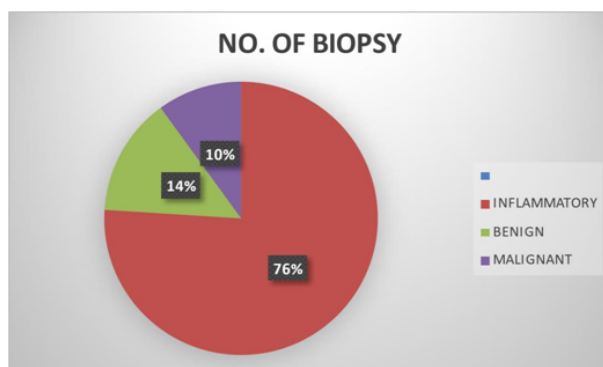


Figure 2: Histopathological Spectrum of Intestinal Lesion

The intestinal lesions were predominantly observed in the age group of 40-70 years.

Table 3: Age Wise Distribution of Histopathological Lesion

Age	Male			Female			Total
	Inflammatory	Benign	Malignant	Inflammatory	Benign	Malignant	
0 - 10	2	3	0	1	0	0	6
11- 20	6	3	0	1	0	1	11
21 - 30	6	3	0	4	1	0	14
31 - 40	4	1	1	5	0	1	12
41 - 50	7	1	1	6	1	0	16
51 - 60	9	0	3	3	1	1	17
61 - 70	8	0	1	7	0	0	16
71 - 80	3	0	1	2	0	0	6
81 - 90	1	0	0	0	0	0	1
91 - 100	0	0	0	1	0	0	1
Total	46	11	7	30	3	3	100

The majority of lesions had inflammatory pathology, which constituted 76 cases in all. 10 lesions were malignant and 14 were benign. The most common age group for non-neoplastic lesion was 51-60 years in male and in female, it was 61-70 years. The most common age group for benign lesion in male was 0-30 year and in female it was 21-60 years. The most common age group for malignancy was between 51-60 years in males and females in the present study. Male to female ratio of malignancies is 2.3:1. Inflammatory lesions were common between the 2nd and 6th decade. 15 cases of Meckel’s diverticulum were found in the present 5 years study.

Discussion

In the present study of 100 cases, non-neoplastic lesions constituted 76 cases and neoplastic lesions constituted 24 cases. Male to female ratio of

malignancies is 2.3:1 which is in correlation to the study done by James M.Crawford who found that the male to female ratio was 2:1[9].

Similarly, male predominance was there in different study of Patel V et al.,2018(Gandhinagar) [10], Shah N.et al., 2017(Ahmedabad) [11], M. Lavanya et al., 2010(Karnataka) [12], Twinkle C. et al., 2018 (Rajkot) [13] and Prabhakar et al., 1981 (Amritsar) [14]. Congenital anomalies, commonest being Meckel’s diverticulum constituting 15 (15%) cases.

Meckel’s diverticulum is failure of proximal portion of vitelline duct to obliterate, which is found in 2% of the population. [11]. Another 76 (76%) non-neoplastic cases were inflammatory, of which were diagnosed as tuberculosis and as Chronic non-specific enteritis based on the histopathology.

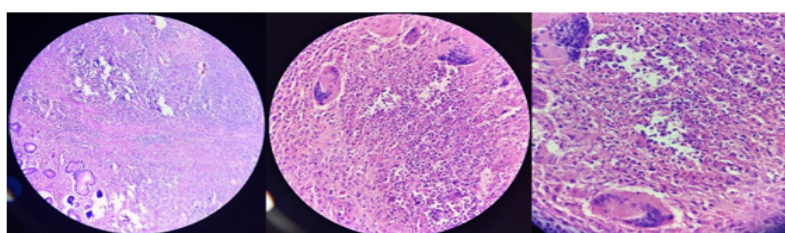


Figure 3: Intestinal tuberculosis, showing non-caseating granuloma with giant cell

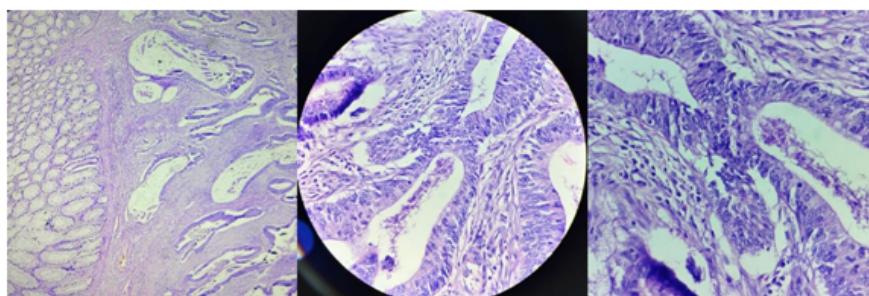


Figure 4: Adenocarcinoma of colon, showing infiltrative gland forming colorectal Adenocarcinoma at low power (4x), intestinal type features (pencil nuclei, purple cytoplasm, rounded glands) and dirty necrosis in gland lumens (40x)

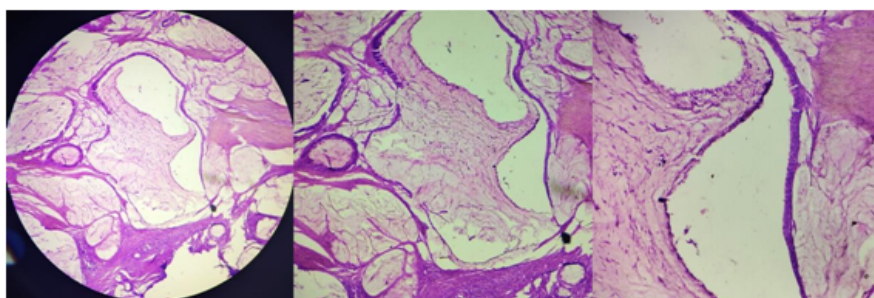


Figure 5: Mucinous adenocarcinoma rectum, showing extra cellular mucin pools with strips of epithelial cells in the mucin

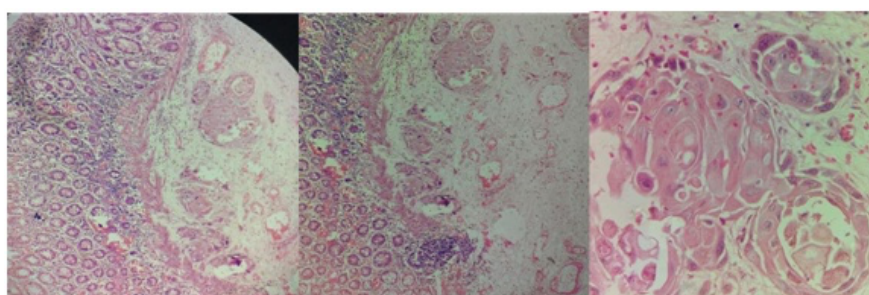


Figure 6: Intestinal adenocarcinoma, poorly differentiated adenocarcinoma with signet ring cell (4x, 10x, 40x)

Table 4: Comparison According to Type of Lesions

Authors	Non neoplastic Lesions	Neoplastic Lesions	Total
Rajesh Y. et al., 2016 (Dhule)	735 (93.27%)	53 (6.73%)	788 (100%)
Neha Mukesh Goel et al., 2019 (Ratnagiri)	98 (77.17%)	29 (22.83%)	127 (100%)
JO Uchendu et al., 2020 (Nigeria)	452 (79.30%)	118 (20.70%)	570 (100%)
Patel V et al., 2018 (Gandhinagar)	953 (98.24%)	16 (1.65%)	969 (100%)
Present Study, 2019-2023	76 (76%)	24 (24%)	100 (100%)

Neoplastic lesion of small intestine is 5% and large intestine 8%, which is more common in age group of 31-60 years. In male malignant lesion is more common than female. In present study, occurrence of Non-neoplastic lesions was more over Neoplastic lesions, out of total 100 lesions, 73 (73%) were Non-neoplastic and 24 (24%) were Neoplastic.

The similar result was found in the study of Rajesh Y. et al., 2016 (Dhule) [15], Neha Mukesh Goel et al., 2019 (Ratnagiri) [16], J O Uchendu et al.,

2020 (Nigeria) [17] and Patel V et al., 2018 (Gandhinagar) [10].

Conclusions

This study concludes that a variety of lesions occur in small and large intestine which have a vague presentation. We observed that inflammatory lesions are seen in both the extremes of life, from early childhood to elderly.

Malignant lesions are more common in males than in females. Present study emphasizes the value of

histopathological diagnosis. Most of these lesions present vaguely, preventing them from early diagnosis and treatment often leading to grave complications.

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