



HISTOPATHOLOGICAL STUDY OF SPECTRUM OF NEOPLASTIC AND NON-NEOPLASTIC LESIONS OF INTESTINE

Pathology

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ABSTRACT

Introduction- Intestinal specimens received includes both neoplastic and non neoplastic lesions. These range from congenital anomalies, inflammatory to neoplastic lesions. Clinical and radiological findings are non specific so, histopathological study is considered to be gold standard for the confirmation. **Materials and methods-** One year study was done during the period of January 2021 to December 2017 at KIMS Hubballi on 293 intestinal specimens (43 small intestine, 84 large intestine and 166 appendix). The specimens were processed routinely and special stains were done where ever required. **Results-** Widespectrum of intestinal lesions were studied. There were 241 non neoplastic lesions and 52 neoplastic cases. Non neoplastic cases included congenital anomalies, inflammatory and ischemic lesions. Neoplastic cases included both benign and malignant lesions. Neoplastic lesions of small intestine included adenocarcinoma, carcinoid, gastrointestinal stromal tumour and gastrointestinal schwannoma. Non neoplastic lesions of large intestine included hirschsprungs disease and sigmoid volvulus. One case of enterobius vermicularis was diagnosed in appendix. **Conclusion-** Intestinal lesions present with vague symptoms and early diagnosis and treatment is essential to prevent the complications. This study emphasises the need for early diagnosis of the disease through histopathology which is essential for appropriate treatment of the patient.

KEYWORDS

Adenocarcinoma, Intestinal lesions, Non- Neoplastic, Neoplastic,

INTRODUCTION

The Gastrointestinal tract (GIT) is the important site for a wide variety of both neoplastic and non-neoplastic lesions. The small intestine and large intestine account for the majority of the GI tract and also the sites for a broad array of diseases. These range from infectious, inflammatory lesions, polyps to malignant tumors.^[1] Colorectal cancer (CRC) is the third leading cause of cancer death in the world, and its incidence is steadily rising in developing nations according to global cancer statistics 2020.^[2] Congenital anomalies of the intestine are more significant cause of morbidity in children than in adults.^[3] Inflammation of the small intestine is relatively common but tumors are rare, accounting for less than 5% of all gastrointestinal tumors but recently there is rise in incidence.^[4] The incidence is increased for adenocarcinomas, malignant carcinoid tumors, and lymphomas in men, and for carcinoid tumors and lymphomas in women.^[5] Adenocarcinomas are most common in the duodenum and proximal jejunum, whereas lymphomas and carcinoid tumors predominate in the ileum and distal jejunum.^[6]

The present study is done to study the spectrum of neoplastic and non-neoplastic lesions in small and large intestine and also to study the age and sex distribution of these lesions.

MATERIALS AND METHODS

One year prospective study was done from January 2021 to December 2021 in the department of pathology, Karnataka Institute of Medical Sciences, Hubballi. A total of 293 resected specimens and biopsies were received in 10% neutral formalin and were subjected to routine histopathological processing. Sections of 5 microns thickness were taken and stained with H&E. The final diagnosis was given after detailed study of these sections under the light microscope and correlating with clinical data. Special stains were also done where ever required. The data was analyzed and results were obtained.

RESULTS

Out of 293 cases studied, 43 (14.6 %) cases were from small intestine, 84 (28.7%) cases were from large intestine and there was 166 (56.7%) cases of appendix. There were 109 females and 184 males [Table 1]. Age ranged from 5 months to 87 years. Majority of cases were in the 4th decade of life and was seen more common in males.

There were overall 241 (82.2%) non neoplastic cases and 52 (17.8%) neoplastic cases. All the cases of appendix were non neoplastic cases. [Table 2]

Table 1-Distribution of intestinal lesions according to age and sex of the patients

AGE	MALE	FEMALE	TOTAL
<1		1	1
1-10	3	1	4
11-20	34	16	50
21-30	59	25	84
31-40	33	21	54
41-50	21	17	38
51-60	16	17	33
61-70	14	8	22
71-80	2	3	5
81-90	2		2
TOTAL	184	109	293

Table 2- Distribution of intestinal lesions according to type

INTESTINAL LESIONS		NO OF CASES	PERCENTAGE
Non neoplastic		241	82.2%
Neoplastic	Benign	8	2.8%
	Malignant	44	15%
TOTAL		293	100%

Lesions of Small Intestine

Among the lesions of small intestine there were 38 non neoplastic and 5 neoplastic cases. [Table 3]

Non neoplastic cases were more common in 2nd to 7th decade of life. Most commonly seen in Males with male to female ratio of 8:1.

Neoplastic cases were more common in 3rd to 8th decade of life. Majority in males with male to female ratio of 1.5:1.

Table 3-Distribution of lesions of small intestine

Non neoplastic	Total no of cases	Percentage
Non specific inflammation	6	13.9%
Gangrene	11	25.8%
Inflammation with perforation	12	27.9%
Non specific ulcer	2	4.6%
Tuberculosis	2	4.6%
Intussusception	2	4.6%
Meckels diverticulum	3	7%
Neoplastic		
Well differentiated adenocarcinoma	1	2.3%
Moderately differentiated adenocarcinoma	1	2.3%

Carcinoid	1	2.3%
GI Shwannoma	1	2.3%
Gastro intestinal stromal tumour	1	2.3%

Among the non neoplastic lesions of small intestine, inflammation with perforation cases were more common [27.9%] seen in ileum, followed by gangrene of small bowel [25.8%] involving most commonly ileum and jejunum.

Intussusception [image 1] and tuberculosis[image 2] were seen in two cases each. Both the cases of intussusception was seen in males aged 40 and 60 years respectively and was due to polypoid lymphoid hyperplasia.



Image 1- Intussusception in 40 year old aged female in the small intestine



Image 2-Tuberculosis of small intestine

Among the neoplastic lesions of small intestine was 1 case each of well and moderately differentiated adenocarcinoma seen in duodenum [image 3]. 1 case each of carcinoid and gastrointestinal stromal tumour in ileum and 1 case of gastrointestinal schwannoma in jejunum [image 4]

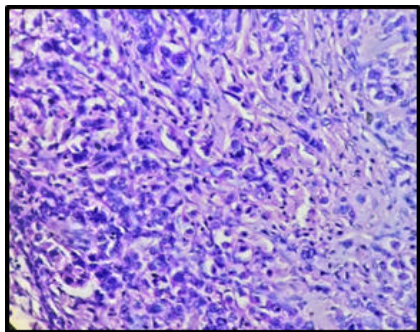


Image 3- (40X H and E) Moderately differentiated adenocarcinoma of duodenum



Image 4-Schwannoma in small intestine (jejunum)

Lesions of large intestine

Among the lesions of large intestine there were 16 non neoplastic and 44 neoplastic cases. Out of 44 neoplastic cases there were 5 benign and 39 malignant cases.[Table 4]

Non neoplastic lesions were more common in 3rd and 4th decade of life with male preponderance, Male to female ratio of 3.6:1

Neoplastic lesions were more commonly seen in 6th and 7th decade of life. Sex incidence was almost equal in both males and females.

Table 4- Distribution of lesions of large intestine

Non neoplastic	Total no of cases	Percentage %
Hirschsprungs disease	1	1.7
Sigmoid volvulus	1	1.7
Acute self limiting colitis	6	10
Infectious colitis	2	3.3
Ulcerative colitis	1	1.7
Ischemic colitis	5	8.3
Neoplastic		
Benign-		
Hyperplastic polyp	2	3.3
Villous adenoma	2	3.3
Juvenile polyp	1	1.7
Malignant		
Adenocarcinoma	30	50
Non hodgkins lymphoma	1	1.7
Mucin secreting adenocarcinoma	7	11.6
Signet ring cell adenocarcinoma	1	1.7

Among the non neoplastic lesions, acute self limiting colitis(10%) was most common followed by ischemic colitis(8.3%). These cases were seen more commonly in 3rd and 4th decade of life.

There were two cases of infectious colitis which included cases of amoebic colitis. One case each of ulcerative colitis, sigmoid volvulus and hirschsprungs disease was seen. Hirschsprungs disease was seen in 6 year old female patient.

Among the neoplastic lesions of large intestine, majority of cases were adenocarcinoma. These cases were seen in wide range of age groups, ranging from 3rd to 7th decade of life showing male preponderance.

Table 5- Distribution of histological types of adenocarcinoma

Histological type	Total no of cases	Percentage
Well differentiated adenocarcinoma	15	39.5%
Moderately differentiated adenocarcinoma	8	21.1%
Poorly differentiated adenocarcinoma	7	18.4%
Mucin secreting adenocarcinoma	7	18.4%
Signet ring cell adenocarcinoma	1	2.6%

Most common histological type of adenocarcinoma was well differentiated adenocarcinoma constituting 39.5% of cases. [Table 5] Most common site was the ascending colon.

Lesions of anal canal

Among the lesions of anal canal, there were 21 non neoplastic cases and 3 neoplastic cases. All the neoplastic cases were malignant [Table 6]

Among the non neoplastic cases, anal fistula was most common constituting 41.6% of cases, followed by hemorrhoids constituting 33.3% of cases. Non neoplastic cases were more commonly seen in age group of 2nd to 4th decade of life. Male preponderance with Male to female ratio of 3.2:1

In the neoplastic cases of anal canal, there was 1 case each of well differentiated squamous cell carcinoma, moderately differentiated adenocarcinoma and malignant melanoma. Age group was between 6th and 7th decade of life.

Table 6- Distribution of lesions of anal canal

Non neoplastic	Total no of cases	Percentage
Anal fistula	10	41.6

Haemorrhoids	8	33.3
Peri anal abscess	3	12.5
Neoplastic		
Moderately differentiated Adenocarcinoma	1	4.2
Well differentiated Squamous cell carcinoma	1	4.2
Malignant melanoma	1	4.2

Lesions of Appendix

166 cases of appendix were studied. All the lesions were non neoplastic. Age group ranged from 10 to 70 years. Most commonly seen in males. Acute appendicitis constituted majority of cases (51.2%), followed by acute suppurative appendicitis constituting 38.5% of cases. [Table 7]

There were 2 cases of tuberculosis and 1 case of Enterobius Vermicularis Parasitic infestation. [Image 5]

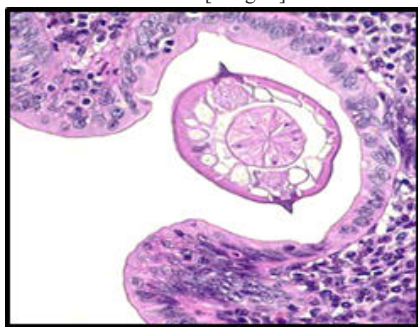


Image 5- 40X enterobius vermicularis infection in appendix

Table 7- Distribution of lesions of Appendix

Histopathology	No. of cases	Percentage(%)
Acute	85	51.2
Acute suppurative	64	38.5
Perforative	9	5.4
Gangrenous	5	3.1
Tuberculosis	2	1.2
Parasitic infestation	1	0.6
Total	166	100

DISCUSSION-

A total number of 5805 histopathology specimens were received at our department during our study period, 293 specimens were of intestinal lesions which accounted 5.04% of all specimens received. Similar number of specimens with intestinal lesions was observed in Nwafor CC^[7] et al study, 4.3%.

In the present study, male preponderance with 62.7% was seen. The male preponderance was also seen in Sunil kumar katari^[8] et al and Nwafor CC^[7] et al with 54.4% and 58.4% respectively. In the present study, the most common age group was 21-30 years, which was in agreement with Neha^[9] et al and Patel V^[10] et al. [Table 8]

Table 8: Comparison of commonest age group for GIT lesions

	Commonest age group	Percentage
Present study	21-30yrs	28.6%
Neha et al	21-30 yrs	18.9 %
Patel V et al	21-40 yrs	47.78%
Sunil Kumar Katari et al	11-20 yrs	29.6%

It was observed that the percentage of non neoplastic lesions in present study (82.2%) was same as Nwafor CC^[7] et al (83.40%). [Table 9]

Table :9 Comparison of type of Intestinal lesion with other studies

	Present study	Neha[9] et al	Sunil Kumar Katari[8] et al	Nwafor CC[7] et al
Non-neoplastic	82.20%	77.20%	94.20%	83.40%
Neoplastic	17.80%	22.80%	5.70%	16.60%

Table: 10 Comparision of intestinal lesions according to site with other studies

Site	Present study	Sunil kumar katari[8] et al	Neha[9] et al
Small intestine	14.67	14.44	8.7

Large intestine	28.66	11.48	15.0
Appendix	56.65	74.07	54.3

It was observed that the percentage of specimens of small intestine in the present study was same as seen in study done by Sunil kumar katari^[8] et al of 14% [Table 10]. And the percentage of specimens of appendix which was 56.65% was similar with that of Neha^[9] et al of 54.3%.

Lesions of small intestine

Non-neoplastic lesions of small intestine-

In our study the most common non-neoplastic lesion was inflammation with perforation accounting to 27.9% followed by gangrenous colitis 25.8%. While the most common non-neoplastic lesion in Nwafor CC^[7] et al was gangrenous colitis while in Sunil Kumar Katari^[8] et al it was nonspecific inflammation (73.5%) which was 13.9% in our study.

Tuberculosis was seen in 4.6% of cases in our study where as it was 7.7% in study done by Nwafor CC^[7] et al and 7.3% in study done by Sunil Kumar Katari^[8] et al

Intussepction was seen in 4.6% of cases in our study where as it was 2.9% in Sunil Kumar Katari^[8] et al study.

Neoplastic lesions of small intestine-

In our study 1 (2.3%) case each of Well differentiated adenocarcinoma, Moderately differentiated adenocarcinoma, Carcinoid, Gastrointestinal schwannoma and Gastrointestinal stromal tumor was seen. Chaudhari T^[11] et al and Guru^[12] et al showed 25% and 5.66% of adenocarcinoma respectively. One case (2.3%) of Gastrointestinal schwannoma was diagnosed in our study

Lesions of large intestine:

Non-neoplastic lesions of large intestine-

In our study the most common non-neoplastic lesion was acute self-limiting colitis (10%) followed by ischemic colitis (8.3%), Ritesh^[14] et al study also showed the same with acute self-limiting colitis (36.84%) and ischemic colitis (31.58%).

Ulcerative colitis was diagnosed in 1.7% cases in present study which was similar to Sunil Kumar Katari^[8] et al study (2.3%)

Infectious colitis was seen in 8.3% cases in present study where as 5.26% cases of same were diagnosed in Ritesh^[14] et al study.

Neoplastic lesions of large intestine-

Adenocarcinoma was most common malignancy in large intestine specimens (63.3%) followed by lymphoma of large intestine (1.7%) in present study. Similar findings were observed in Ritesh^[14] et al (89.71%) and in Chaudhari T^[11] et al (64.28%) study. Most common histological type observed was well differentiated adenocarcinoma (39.5%) where as in Ritesh^[14] et al study moderately differentiated carcinoma type was common (57.37%). Ritesh^[14] et al study also found similar cases of lymphoma (2.94%) as present study (1.7%).

Lesions of anal canal-

41.6% cases of fistula were diagnosed in our study where as in Ritesh^[14] et al 60% had fistula as diagnosis. Fistula was most common non-neoplastic lesion of anal canal in both the studies followed by hemorrhoids. Hemorrhoids was seen in 33.3% cases in our study which was same as Ritesh^[14] et al study (34.55%).

4.2% cases of each of squamous cell carcinoma, adenocarcinoma and malignant melanoma was seen in present study. Ritesh^[14] et al study showed squamous cell carcinoma in 55.56% of cases followed by adenocarcinoma (33.33%) and malignant melanoma (11.11%).

The most common specimen received in our study was that of appendix 166 cases (56.65%). Majority of which were diagnosed as acute appendicitis (51.2%). Nwafor CC^[7] et al, Sunil Kumar Katari^[8] et al and Prasaad PR^[13] et al also made the similar observations.

One case (0.6%) of Enterobius vermicularis parasitic infection was diagnosed and similar observation was made by Prasaad PR^[13] et al study (1%).

CONCLUSION-

The study shows varied spectrum of histopathological types of both benign and malignant lesions seen in the intestine. Most of the lesions

present with vague symptoms and early diagnosis and treatment is essential to prevent the complications. This study emphasises the need for early diagnosis of the disease through histopathology, which when correlated clinically will help the clinicians or surgeons to implement the appropriate treatment and improve the survival of the patients.

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