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Original Research Article

Histopathological Study of Lesions of the Large Intestine- A Prospective Study

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Abstract

Background: Large intestine and anal canal harbors various neoplastic and non-neoplastic lesions. Colorectal carcinoma is one of the leading cause of death. This study was aimed to evaluate and correlate the spectrum of various lesions of large intestine including anal canal in relation to age and sex of the patients and to compare the study done in our institute with other studies. ***Material and Methods:*** This one year study was done during the period of January 2018 to December 2018 in a tertiary care center which included 58 cases from large intestine and 16 cases of anal canal. All biopsies and resected specimens were fixed in formalin and stained with H&E and special stains like Periodic Acid Schiff (PAS) and Ziehl Neelsen (ZN) were done in required cases. ***Results:*** Out of 58 cases of large intestine 36 cases were non-neoplastic and 22 were neoplastic cases. 16 cases from anal canal were non-neoplastic lesions. Adenocarcinoma was the commonest malignant neoplastic lesion. Most of the cases presented with symptoms like bleeding per rectum, abdominal pain and constipation. ***Conclusion:*** The present study observed that non-neoplastic lesions were more common in large intestine and anal canal. There was a higher incidence in male patients. Neoplastic lesions were common in 3rd and 4th decade. Adenocarcinoma was the commonest among neoplastic lesions. This study also emphasizes histopathological evaluation is essential for early diagnosis of the tumors which will increase the survival rates of the patients.

Keywords: Large intestine, Anal canal, Neoplastic, Non-neoplastic, Adenocarcinoma, Histopathology.

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INTRODUCTION

Large intestine has an unique digestive and immune functions. Large intestine and anal canal are sites for various neoplastic and non-neoplastic lesions. Non-neoplastic lesions includes infections, vascular disorders, ulcers and various inflammatory disorders [1]. Intestinal lesions are common in day to day life. Adenocarcinoma is the commonest malignant neoplasm arising in colorectum. Colorectal cancer is one of the leading causes of cancer related mortality in developed and also in developing countries. It is the third most common cancer among the men and women, and it is the second leading cause of death from cancer in United states. At the same time it is by far the most curable form of carcinoma of gastrointestinal tract [2]. Histopathology is the gold standard investigation in diagnosis of gastrointestinal tumors. So early diagnosis of the lesion by complete histopathological evaluation along with clinical correlation will improve the survival rates of the patients [3].

In this study, we were aimed to study the prevalence of various neoplastic and non-neoplastic lesions of the large intestine including anal canal, correlate them with clinical data like age, sex and to compare with other studies.

MATERIALS AND METHODS

The present study is a prospective study done for one year during the period of January 2018 to December 2018 in a tertiary care centre. A total of 74 cases, which included 58 cases of large intestine and 16 cases of anal canal. All the small biopsies and resected specimens received were properly labeled and immediately fixed in 10% formalin. Gross examination findings were noted. Routine tissue processing and H & E staining was done. Special stains like PAS, ZN staining were done in required cases.

The clinical details and the relevant investigations of the patients were obtained from the requisition forms, case sheets and other medical records. A detailed microscopic examination of the

stained slides was carried out and final diagnosis was given.

RESULTS

Lesions of Large Intestine

Out of 58 cases of large intestine, non-neoplastic lesions (36 cases) were found to be common. Among these lesions, maximum cases were of non-specific colitis (20 cases) followed by non-neoplastic polyps (10 cases). Among the polyps, 6 cases were inflammatory polyps and 4 cases were hyperplastic polyps. Other types of colitis like ulcerative colitis (2 cases), amoebic induced colitis (1 case), eosinophilic colitis (1 case) and were also reported. Two cases of solitary rectal ulcer syndrome also noted. Among neoplastic lesions (22 cases), majority were malignant neoplasms (13 cases) in which adenocarcinoma was the commonest histological type. In benign neoplasms, majority were tubulo- villous adenomatous polyps (Table-1).

Table-1: Distribution of lesions of large intestine

S. No	Lesion	Number of cases	Percentage
1	**Non-neoplastic**	**36**	**62.1%**
	Non specific inflammation	20	55.5%
	Inflammatory polyp	6	16.6%
	Hyper plastic polyp	4	11.1%
	Infectious colitis	1	2.7%
	Ulcerative colitis	2	5.5%
	Solitary rectal ulcer syndrome	2	5.5%
	Eosinophilic colitis	1	2.7%
2	**Neoplastic**	**22**	**37.9%**
	Adenomatous polyp	9	40.9%
	Adenocarcinoma	13	59.1%
	Total	58	100%

The non- neoplastic lesions were common in third to sixth decade with male preponderance and male to female ratio of 2.5:1. Among the neoplastic lesions, male preponderance was found in both malignant (1.6:1) and benign cases (2:1). Benign lesions were common in 3rd to 4th decade and malignant were found to be common in 5th to 7th decade.

Among adenocarcinomas, moderately differentiated adenocarcinomas were the commonest histological type (5 cases) (Table-2).

Table-2: Distribution of histological types of adenocarcinoma

Histological type	Number of cases	Percentage
Well differentiated	3	23.1%
Moderately differentiated	5	38.4%
Poorly differentiated	2	15.4%
Mucin secreting adenocarcinoma	1	7.7%
Signet ring cell carcinoma	2	15.4%
Total	13	100%

Bleeding per rectum (46 cases) was found to be the commonest clinical symptom among patients of large intestine lesions followed by pain abdomen (32 cases), constipation (28 cases) and diarrhea (20 cases) (Table-3).

Table-3: Distribution of the large intestinal lesions with respect to symptoms (includes anal canal)

Symptoms	Number of cases	Percentage
Bleeding per rectum	46	62%
Pain abdomen	28	37%
Constipation	26	35%
Diarrhea	22	29%
Mass per abdomen	6	8%

Lesions of Anal Canal

In the present study all anal canal lesions (16 cases) were non-neoplastic. Fistula in ano (8 cases) was the commonest among the non-neoplastic lesions (Table-4). In anal canal lesions, the most common age group affected was 4th to 5th decade. Anal canal lesions show male preponderance (2:1).

Table-4: Distribution of lesions of Anal canal

Lesion	No. of cases	Percentage
Non-neoplastic	16	100%
Fistula in ano	8	50%
Haemorroids	7	44%
Fibroepithelial polyp	1	6%
Total	16	100%

Fig-1: Gross specimen of Large intestine showing infiltrative growth with gelatinous cut surface

Fig-2: Gross specimen of large intestine showing multiple polyps and adjacent early flat tumor growth

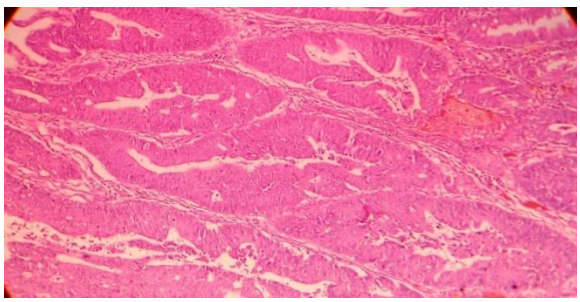

Fig-3: Colon Adenocarcinoma (H&E Stain 20x)

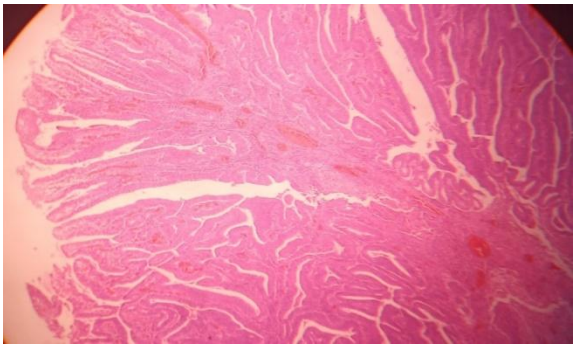

Fig-4: Tubulo-villous adenoma (H&E Stain, 20x)

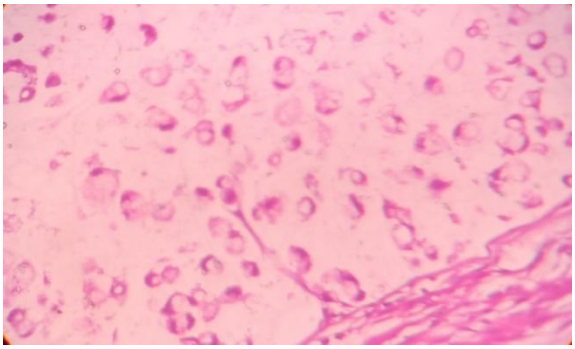

Fig-5: Signet ring cell carcinoma of colon (H&E stain 40x)

DISCUSSION

Lesions of large intestine:

Table-5: Comparative study of non-neoplastic and neoplastic lesions of large intestine

Lesion	Nanavati M *et al.*, [4]	Shah N *et al.*, [5]	Present study
Non-neoplastic	78.5%	81.5%	62.1%
Neoplastic	21.5%	18.5%	37.9%
Total	100%	100%	100%

In the present study there were 36 cases of non-neoplastic lesions were found comprising 62.1% of total 58 cases and 22 cases of neoplastic lesions were seen comprising 37.9% of total cases. Studies conducted by Nanavati M *et al.*, [4] (78.5%) and Shah N *et al.*, [5] (81.5%) also shows similar results with non-neoplastic lesions predominance (Table-5).

Table-6: Comparision of age and sex wise distribution of non-neoplastic lesions

	Riteshsulegaon *et al.*, [3]	Present study
Male: Female	2.4:1	2.5:1
Age group	31-60 years	31-40 years

In the present study the male patients with 31-40 years were the majority among non-neoplastic cases which is similar to the sulegaon *et al.*, [3] study results were males with 31-60 years were the majority of non-neoplastic cases (Table-6).

Table-7: Comparision of age and sex wise distribution of neoplastic lesions

	Sharma *et al.*, [6]	Shah N *et al.*, [5]	Present study
Male: Female	1:0.9	1.9:1	1.8:1
Age group	> 50 years	61-70 years	61-70 years

In the present study the male patients with 61-70 years were the majority among neoplastic cases which is similar to the Shah N *et al.*, [5] study results were males with 31-60 years were the majority of non-neoplastic cases (Table-7).

Table-8: Comparision of various categories of large intestine neoplastic lesions

Category	Shilpa Uplaonkar *et al.*, [7]	Hiren mundiya *et al.*, [8]	Present study
Benign	12.90%	23.88%	40.9%
Malignant	87.10%	76.12%	59.1%
Total	100%	100%	100%

Inflammatory lesions in non-neoplastic category and malignant lesions in neoplastic category were leading cause of various large intestine lesions. Similar results had been obtained in the study by Shilpa uplaonkar *et al.*, [7] and Hiren mundiya *et al.*, [8] (Table-8).

In the present study adenomatous polyps were the most common neoplastic polyp (40.9%). On histology 5 cases were tubule-villous adenomas with moderate to severe dysplasia, 2 cases were tubular adenoma with mild dysplasia and 2 cases were villous adenoma (one with mild dysplasia). Study conducted by Tony J & Harish *et al.*, [9] found 88% of tubular adenomas and severe dysplasia in 4% of cases.

Table-9: Distribution of adenocarcinoma of large intestine with respect to histological grade

Grade	Histological grade	No. of cases	Percentage
I	Well differentiated	3	23.1%
II	Moderately differentiated	5	38.4%
III	Poorly differentiated	2	15.4%

Table-10: Comparision of adenocarcinoma of large intestine according to histological grade

Grade	Riteshsulegaon *et al.*, [3]	Shefali h. Karve *et al.*, [10]	Caliskan *et al.*, [11]	Present study
I	18.03%	35.3%	13.16%	23.1%
II	57.37%	36.8%	56.02%	38.4%
III	24.6%	27.9%	11.16%	15.4%

In the present study, majority of cases of adenocarcinoma were of grade II (38.4%). In other studies by Riteshsulegaon *et al*., [3], Shefali H. Karve *et al*., [10] and Mundiya *et al.*, [11], Grade II carcinoma was seen the commonest grade (Table-10).

Lesions of Anal Canal

In the present study all (100%) were non-neoplastic lesions. Out of 16 cases, fistula in ano was the commonest lesion followed by hemorrhoids. A study conducted by Riteshsulegaon *et al*., [3] also found the fistula in ano (60%) was the commonest non-neoplastic lesion of anal canal followed by hemorrhoids (34.5%).

CONCLUSION

The present study revealed large intestine and anal canal harbors various types of lesions. Histopathologically lesions were divided into non-neoplastic and neoplastic lesions. Adenocarcinoma was the commonest among neoplastic lesions, with male preponderance. Majority of these tumors have clinically vague symptoms which prevent their early diagnosis and leads to various complications. Histopathology is essential for diagnosis and typing of the tumors .This study emphasizes the need for early diagnosis of the lesions by histopathology which will increase the survival rates of the patients.

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