



A STUDY OF HISTOPATHOLOGICAL SPECTRUM OF NEOPLASTIC LESIONS OF LARGE INTESTINE TUMORS, IN RIMS RANCHI

Pathology

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ABSTRACT

Introduction - Colorectal carcinoma is the third leading cancer worldwide, approximately accounting for 9% of all cancers. The estimated worldwide annual incidence of colorectal carcinoma is one million, which makes it the second most common carcinoma in females and third in males. Carcinoma of the large bowel is leading cause of death from cancer as the third most common cancer among men and second among women. Chronic inflammatory bowel diseases like ulcerative colitis, crohn's disease and high calorie diet and sedentary life style are etiological factors for colorectal carcinoma.

Aims And Objectives: (1) To evaluate different histopathological types of tumors of colorectum; (2) To correlate the various neoplastic lesions in relation to age and sex.

Material And Method: A study of 84 patients presenting with complains of abdominal pain and bleeding per rectum at RIMS Ranchi over a period of 2 years from 2019 to 2021. All specimens of resected large intestine were received and overnight fixation in 10% formalin was done followed by routine paraffin embedding and tissue sectioning. Slides were stained using H&E stain, examined microscopically. The specimens were collected from subjects diagnosed as colorectal carcinomas in histopathology department and clinical details like age and sex.

Results: Out of 84 malignant cases large intestine specimens, most common site of malignancy seen in rectum which is 48.80 %. Adenocarcinoma is the most common histological variant of colon carcinoma. Maximum number of patients presented in 46-60 years of age which is of 39.28%. The youngest patient with an adenocarcinoma was 15 years male and the oldest one was 77 years old male. The male to female ratio was 1.71:1. The study revealed that the carcinoma of rectum was much more common, constituting about 41 cases (48.80%) followed by sigmoid colon with 12 cases (14.28%).

Conclusion: Adenocarcinoma is the most common histological variant of colon carcinoma. Majority of malignant large intestinal lesions distributed among the age group of 46-60 years with male preponderance.

KEYWORDS

Malignant lesion, Adenocarcinoma large intestine, histopathology.

INTRODUCTION

Colorectal carcinoma is the third leading cancer worldwide, approximately accounting for 9% of all cancers. The estimated worldwide annual incidence of colorectal carcinoma is one million, which makes it the second most common carcinoma in females and third in males^[1]. Mean age of diagnosis is 62 years with a slight higher incidence among the males as compared to the females. Generally the incidence of colorectal carcinoma and the mortality rates are greater in developed nations of Western world, whereas the developing continents have lower rate of occurrence^[2]. Lack of physical activity, red meat diet, high fat diet with poor fibre may be related to the increase in incidence. According to World Cancer Report 2014, among men cancer of colorectum ranked third, preceded by lung and prostate cancers. Among women, it ranked as second most common cancer, only preceded by cancer of breast^[3]. The large intestine, extends from the ileocecal junction to the anus. It is about 1.5 m long, and is divided into the caecum, the ascending colon, the transverse colon, the descending colon, the sigmoid colon, the rectum and the anal canal. High predisposition for colorectal carcinoma in patients with familial adenomatous polyposis (nearly 100% by 50 years of age) is because of genetic factors. The most common malignancy arising from colorectal region is adenocarcinoma.

AIMS AND OBJECTIVES:

(1) To evaluate different histopathological types of tumors of colorectum; (2). To correlate the various neoplastic lesions in relation to age and sex.

MATERIAL AND METHOD:

A study of 84 patients presenting with complains of abdominal pain and bleeding per rectum at RIMS Ranchi over a period of 2 years from 2019 to 2021. All specimens of resected large intestine were received and overnight fixation in 10% formalin was done followed by routine paraffin embedding and tissue sectioning. Slides were stained using H&E stain, examined microscopically. The specimens were collected

from subjects diagnosed as colorectal carcinomas in histopathology department and clinical details like age and sex.

RESULTS:

Total 84 malignant cases were studied. Age of patients ranged between 0 to 77 years. The most common age group affected were in 46-60 years with male and female ratio 1.71:1. Patients presented with history of pain abdomen, bleeding per rectum, features of bowel obstruction and other constitutional symptoms like fever, malaise and loss of weight. Rectum was the most common site involved. In our study Adenocarcinoma was the commonest histologic type followed by squamous cell carcinoma. The most common morphology of tumor was adenocarcinoma 75 cases (89.28%), out of total 75 adenocarcinoma a number of 21 (28 %) were well differentiated adenocarcinoma, 43(57.33%) were moderately differentiated and 11 (14.67%) were poorly differentiated adenocarcinoma. Well differentiated tumors look more like the glandular tissue that they are derived from, they tend to grow and spread more slowly.

As compared to well differentiated and moderately differentiated colon carcinoma, poorly differentiated colon tumors are more aggressive and tend to spread quickly. The histological grading of colon cancer is important in determining in patients prognosis as well as spreading of tumor. Rectum was the most common location involved with 41 (48.80%) cases of the total 84 carcinoma of colorectum, followed by sigmoid colon with 12 (14.28%) cases followed by rest of the segments of the colon. Regarding gender distribution in our study; there was a higher incidence in the males of 53 cases (63.10%) affected by colorectal malignancy than females of 31 cases (36.90%). Highest age incidence of malignant large intestine lesion is between 46-60 years. Three cases of carcinoid tumor seen in female patients. One case was malignant melanoma seen in female confirmed by immunohistochemistry with S-100 and HMB-45 was positive. A single case of Non-Hodgkin's lymphoma of diffuse large B-cell Lymphoma was found, it was confirmed with immunohistochemistry CD19 and CD20.



Figure: Showing Gross Specimen Of Carcinoma Rectum

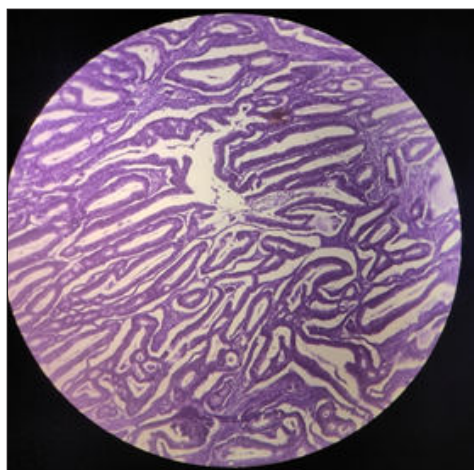


Figure: Microscopic Picture Showing Well Differentiated Adenocarcinoma Of Rectum (H&E 40x).

Table 1: Age Incidence Of All 84 Cases Of Malignant Lesions In Present Study

Age(in years)	No. of cases	Male	Female
0-15	01	01	00
16-30	08	05	03
31-45	16	10	06
46-60	33	19	14
61-75	20	14	06
>75	06	04	02
Total	84	53	31

Table 2: Site Wise Distribution Of Lesions

Site	No. of cases	Percentage (%)
Appendix	01	01.19 %
Caecum	06	07.14 %
Ascending colon	04	04.76 %
Transvers colon	07	08.33 %
Descending colon	09	10.71 %
Sigmoid colon	12	14.28 %
Rectum	41	48.80 %
Anal canal	04	04.76 %

Table 3: Histopathological Aspect Of Large Intestinal Tumors

Age (yrs.)	Adenocarcinoma		Squamous cell carcinoma		Malignant melanoma		Non-Hodgkin's lymphoma		Carcinoid tumor	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-15	1	0	0	0	0	0	0	0	0	0
16-30	5	3	0	0	0	0	0	0	0	0
31-45	9	5	0	0	0	0	1	0	0	1
46-60	19	8	0	3	0	1	0	0	0	2

61-75	13	6	1	0	0	0	0	0	0	0
>75	4	2	0	0	0	0	0	0	0	0

Table 4: Histopathological Grading Of Adenocarcinomas

Histopathological types	No. of Patients	Percentage
Well differentiated adenocarcinoma	21	28%
Moderately differentiated adenocarcinoma	43	57.33%
Poorly differentiated adenocarcinoma	11	14.67%

DISCUSSION

The common age group involved in our study was the 5th to 7th decade of life^[3-6]. In our study there is males preponderance with male to female ratio of 1.7:1^[7-9]. Around 68.47% of our patients had bleeding per-rectum as their common presenting symptom. Other common presenting symptoms were altered bowel habits, pain abdomen and anaemia. A minority of our patients presented with rare clinical features of sub-acute intestinal obstruction^[10,11]. Consumption of red meat, obesity and lack of physical activity were found important risk factors in our patients. Overall it is a well-known fact that the excess of red meat intake, increased calorie intake and lack of physical activity are potential risk factors for colonic malignancy^[12-16]. In our study carcinoma colon (43 cases) more than carcinoma rectum (41 cases), which is consistent with other world literature^[9]. The poorly differentiated tumors were more common in younger age group^[5]. On studying site-wise distribution of the lesions rectum was the commonest site for colorectal adenocarcinomas in 75 cases (89.28%). More than 95% of all cases of colorectal cancer are adenocarcinomas^[17]. On histological typing, majority of our cases 43, (57.33%) were interpreted as moderately differentiated adenocarcinomas followed by well differentiated 21 cases (28%) and poorly differentiated 11 cases (14.67%). Studies have suggested well-differentiated type corresponding to histological Grade I (15–20%), Moderately differentiated as Grade II (60–70%) and poorly differentiated to be Grade III (15–20%)^[18]. Histological grades are found to be related to rate of survival^[19-21].

CONCLUSION

- 1). Adenocarcinoma colon is a most common histological tumor type of large intestine which is similar to that reported in the rest of India and World.
- 2). Many colorectal carcinoma can be prevented through regular screening because when detected early they can be treated effectively. Left sided colon specially rectum was the most common site for malignancies of large intestine. Peak age distribution was in 6th decade with male predominance.
- 3). Adenocarcinoma was commonest malignancy; majority were moderately differentiated. Histopathological examination is must for the diagnosis and grading of these tumors.

REFERENCES

- 1). Rasool MU, Mubeen B, Andrabi RS, Hamis S, Rasool Z, Shah P, Shah OJ, 2015 : Histopathological study of neoplastic lesions of large intestine, Int. Res. J. Medical Sci, may 2015, 3(5):1-5.
- 2). Parkin DM, Pisani P and Ferlay J., Global cancer statistics, CA cancer J Clin. 1999, 49(1), 33.
- 3). Glenn Frank, Mesherry Charles K. Carcinoma of distal large bowel. Ann Surg. 1966;163(6):838-42.
- 4). Xu AG, Yu ZJ, Jiang B, Wang XY, Zhong XH, Liu JH, et al. Colorectal cancer in Guangdong Province of China: a demographic and anatomic survey. World J Gastroenterol. 2010 Feb;16(8):960-5.
- 5). Laishram RA, Kaiho N, Shimray R, Devi SB, Punyabati P, Sharmaet DC. Histopathological study of colorectal carcinoma status in Manipur, India. Int J Pathol. 2010;8(1):5-8.
- 6). Shah A, Wani NA. A study of colorectal adenocarcinoma at SKIMS, Srinagar. Indian J Gastroenterol. 1991 Jan;10(1):12-3.
- 7). Caldarella VT, Jackman RJ, Moertel CG, Dockerty MB. Carcinoid tumors of the rectum. Am J Surg. 1964;107:844-9.
- 8). Yoon SN, Yu CS, Shin US, Kim CW, Lim SB, Kim JC. Clinicopathological characteristics of rectal carcinoids. Int J Colorectal Dis. 2010 Sep;25(9):1087-92.
- 9). Gul J, Zargar SA, Rather S, Khan AR, Khan BA, Yattoo GN, et al. Incidence of colorectal cancer in Kashmir Valley, India. Indian J Gastroenterol. 2011 Jan-Feb;30(10):7-11.
- 10). Stein W, Farina A, Gaffney K, Lundeen C, Wagner K, Wachtel T. Characteristics of colon cancer at time of presentation. Fam Pract Res J. 1993;13(4):355-63.
- 11). William Hamilton, Robert Lancashire, Debbie Sharp, Tim J. Peters, Cheng KK, Tom Marshall. The risk of colorectal cancer with symptoms at different ages and between the sexes. Br Med J. 2009 Apr;7:17.
- 12). Slattery ML, Potter J, Caan B, Edwards S, Coates A, Ma KN, et al. Energy balance and colon cancer beyond physical activity. Cancer Res. 1997;57(1):75.
- 13). Singh PN, Fraser GE. Dietary risk factors for colon cancer in a low-risk population. Am J Epidemiol. 1998;148(8):761.
- 14). Slattery ML, Potter J, Caan B, Edwards S, Coates A, Ma KN, et al. Energy balance and colon cancer beyond physical activity. Cancer Res. 1997;57(1):75-80.
- 15). Willett WC, Stampfer MJ, Colditz GA, Rosner BA, Speizer FE. Relation of meat, fat, and fiber intake to the risk of colon cancer in a prospective study among women. N Engl J Med. 1990;323(24):1664-72.
- 16). Fuchs CS, Giovannucci EL, Colditz GA, Hunter DJ, Speizer FE, Willett WC. A

- prospective study of family history and family history and the risk of colorectal cancer. *N Engl J Med.* 1994;331(25):1669-74.
- 17). Ayse Neslin A, Serdar Y, Zeynep TO, et al. TNM and Modified Dukes staging along with the demographic characteristics of patients with colorectal carcinoma. *Int J Clin Exp Med* 2014;7(9):2828–35.
 - 18). Dogusoy G. Kolon Kanserinin Patolojik Ozellikleri. In: Alemdaroglu K, Akcali T, Bugra D, editors. *Kolon Rectum ve Anal Bolge Hastaliklari* Istanbul: Turk Kolon ve Rectum Cerrahi Dernegi 2003. pp. 413–20.
 - 19). Wiencke JK, Zheng S, Lafuente A, et al. Aberrant methylation of p16INK4a in anatomic and gender-specific subtypes of sporadic colorectal cancer. *Cancer Epidemiol Biomarkers Prev.* 1999 Jun;8(6):501–6.
 - 20). Christine A, Lacobuzio D, Elizabeth M. Epithelial neoplasms of the colorectum. In: *Gastrointestinal and liver pathology*. Churchill Livingstone Elsevier 2005; 367–94.
 - 21). Sokmen S. Kolorektal Kanserde Prognoz, Kolorektal Ozel Sayisi. *Turkiye Klinikleri Journal of surgery* 2004;9(1):57–65.