INCREASING INCIDENCE OF COLORECTAL CARCINOMA IN YOUNGER AGE GROUP IN OUR POPULATION.

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Abstract:

Objectives: To determine the incidence of colorectal carcinoma in various age groups received at the department of pathology BMSI JPMC over a 5 years period.

Material and Method: A retrospective, descriptive study was conducted at the department of pathology BMSI JPMC and all Colon carcinoma specimens received over a period of 5 year i.e.; from 31st December 2008 to 31st December 2013 were reviewed. All specimens were formalin fixed, routinely processed for paraffin embedding, sectioned and finally stained with Haematoxylin & Eosin using standard procedures. Special staining was performed where required.

Results: During the study period 2008 to 2013, 56 cases of colorectal carcinoma, consisting of 42(75%) nonmucinous, 12(21.4%) cases of Mucinous and 02 (3.57 %) cases were signet ring type cell carcinoma. Most of cases were found in 5th decade i.e.15 (27%) cases. Mucinous and signet ring type cell carcinoma of colon present at advance stage.

Conclusion: Our study showed high incidence of colorectal carcinoma in younger age group at more advance stage of disease. Mucinous type and signet ring cell carcinoma of colon are poorly differentiated and present at an advanced stage than non-mucinous adenocaincrcinomas

Key Words: Mucinous carcinoma, Signet ring type cell carcinoma.

Introduction:

Colorectal carcinoma is the commonest malignant tumour of the gastrointestinal tract [1]. In United States, it is the second leading cause of cancer related deaths[2].

The incidence of colorectal carcinoma is variable. Higher incidence rates are reported in North America, Australia and Europe, while lower rates are seen in Africa and Asia[3]. In the UK, colorectal carcinoma is the third most common cancer (in men and in women)[4]. According to Ireland cancer Registry, Colorectal carcinoma is the 3rd most common malignant tumor in men and 2nd most common in women[5] while at Shaukat Khanum Cancer Hospital and Research Center Collective Cancer Registry[6] colorectal carcinoma accounts for the 6th most common cancer in all age groups and both sexes.

In men its incidence ranges from 48.3 to 72.5 per 100000 per year while in women it ranges from 32.3 to 56 per 100000 per year[7]

According to a study conducted at the Aga Khan University hospital Karachi[8] colorectal carcinoma had a strong appearance in both sexes especially in females (at number three). Colorectal carcinoma was seen in all age groups (1st decade and 2nd decade) but most of cases belonged to the 2nd and 3rd decade.

Material And Methods:

This study was based on the analysis of Colectomy Samples, received at the Department of Pathology, BMSI, JPMC from 31-12-2008 to 31-12-2013. 56 cases of colectomy samples were analysed for morphological features including Grade and Stage according to Astler & Coller staging system.

Results:

During the study period, 56 cases of colectomy samples including all adenocarcinoma cases were analysed.

Table 01 shows distribution of colorectal carcinoma according to age. Among these patients the age range was 10-70 years with most of the patients belonging to the age group of 21-60 yrs. The mean age was calculated to be 44 years. Most cases were found in males that is 34 (61%) while only 22 (39%) cases were found in females. Nonmucinous type was most comm- only encountered in males i.e. 23 (41.07%) cases with a lower figure in females i.e. 19 (34%) cases. Signet ring type was only encountered in males i.e. 02 cases.

Table 02 & 03 show that out of 56 cases, 11 (19.6%) were well differentiated and 05 amongst them were of stage B2, 31 (55.35%) cases were moderately differentiated and 16 amongst them were in stage B2 while 15 were in stage C1 & C2.Out of the total cases, 14(25%) were poorly differentiated with 4 cases of stage B2 and 10 cases of stage C1 and C2.

Out of 56 cases, most of 'non-mucinous' adeno- carcinomas were moderately differentiated that is 31 (55.35%) cases while 21 cases were found in stage B2 and 20 cases in stage C1 & C2 . Out of the 12 cases of 'mucinous' adeno- carcinoma, 10 (83.3%) cases were poorly differentiated and were in C1 & C2 stage. 02 out of 56 cases were poorly differentiated signet ring carcinoma with 01 case at B2 and 01 case of C2 stage.

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TABLE.1: DISTRIBUTION OF COLORECTAL ADENOCARCINOMA ACCORDING TO AGE (n=56)

COLORECTAL ADENOCARCINOMA	(11-20) Yrs	(21-30) Yrs	(31-40) Yrs	(41-50) Yrs	(51-60) Yrs	>61 Yrs	Total (%)
NONMUCINOUS 42	2 (4.77%)	12 (28.58%)	5 (11.9%)	8 (19%)	11 (26.1%)	4 (9.5%)	42 (100%)
MUCINOUS 12	-	-	03 (25%)	05 (41.67%)	04 (33.33%)	-	12 (100%)
SIGNET RING 02	-	01 (50%)	01 (50%)	-	-	-	02 (100%)
Total 56	02 (4%)	13 (23%)	09 (16%)	13 (23%)	15 (27%)	04 (07%)	56 (100%)

TABLE 02: REALTIONSHIP BETWEEN HISTOLOGICAL TYPE & ASTLER & COLLER STAGE OF COLORECTAL (n=56)

Astler & Coller grading & Staging system	Histological Grade		
	Well differentiated (11 cases)	Moderately differentiated (31 cases)	Poorly differentiated (14 cases)
B1	01		
B2	05	16	04
C1	02	04	05
C2	03	11	05

TABLE-03: REALTIONSHIP BETWEEN HISTOLOGICAL TYPE, GRADE & ASTLER & COLLER STAGE OF COLORECTAL CARCINOMA (n=56)

COLORECTAL CARCINOMA										
Histological Type		Non-mucinous (42 cases)			Mucinous (12 cases)			Signet-ring cell (02 cases)		
		Well	Moderate	Poorly	Well	Moderate	Poorly	Well	Moderate	Poorly
Histological grade		11	31	00	00	00	12	00	00	02
Astler & Coller grading & Staging system	B1	01	00				00			00
	B2	05	16				03			01
	C1	02	04				05			00
	C2	03	11				04			01

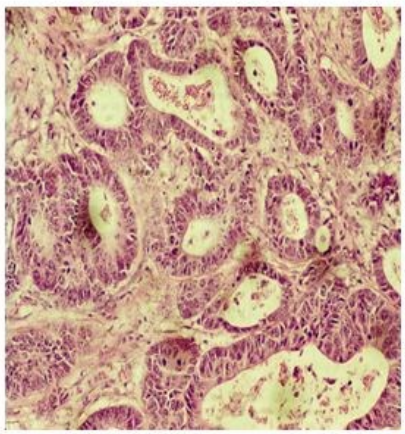

Fig1: Photomicrograph showing well-differentiated adenocarcinom

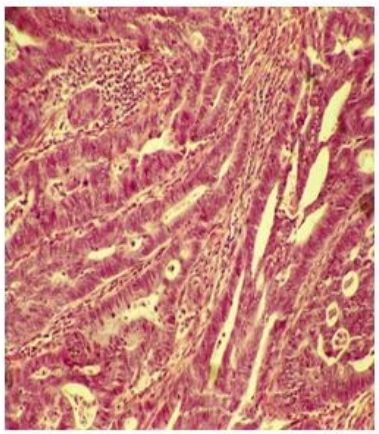

Fig2: Photomicrograph showing Moderately-differentiated adenocarcinoma

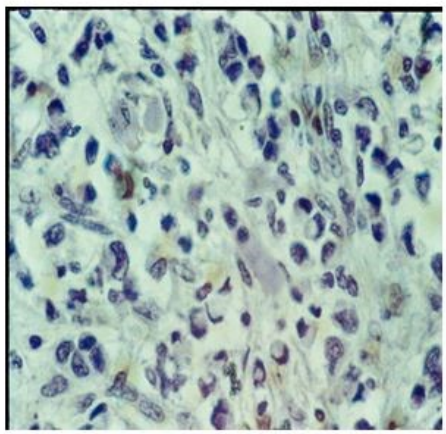

Fig3: Photomicrograph showing Signet cell Carcinoma (Poorly-differentiated)

Discussion:

Colorectal carcinoma is the third most common malignant tumour in male and female worldwide and has shown a rise in incidence in low risk areas such as Asian subcontinent particularly in younger age group.

In this study an attempt has been made to correlate various morphological types of colorectal tumours with age, sex, Histopathological grade, Astler and Coller grading and staging in assessing prognosis.

The most commonly affected age group was 51-60 years having 27% cases followed by 41-50 years having 23% cases. An interesting finding in present study was that 43% of patients were younger than 40 years of age.

In this study out of 56 colorectal adenocarcinoma, 42 cases were non-mucinous with 20 (47.6%) cases in C1 & C2 stage. Out of 12 cases of mucinous adenocarcinoma 09 (75%) were in stage C1 & C2. Also half of signet ring cell type cases that is 01 out of a total of 2 (50%) were in stage C2. Our study revealed that mucinous & signet ring type tumours present at an advanced stage. Our findings correlate with results by Bottorff et al which also showed that signet ring cell type colorectal carcinomas were diagnosed at advanced tumour stage with a significantly higher incidence of distant metastasis[9].

In this study colorectal carcinoma cases were in young with advance stage due to later in diagnosis and signet ring type and 12/08 cases were mucin type tumour.

In this study, 42 out of 56 cases were non-mucinous adenocarcinomas, out of the 42 cases,11 were well differentiated and were mostly found at Astler Coller stage B2. Out of the 31 cases of moderately differentiated non-mucinous adeno- carcinoma, 16 cases were in stage B and 15 cases in stage C. All 12 cases of mucinous adeno-carcinoma were poorly differentiated and mostly found in stage C. Both the two cases of poorly differentiated signet ring cell carcinoma were in stage B and C. Our study showed that all moderately and poorly differentiated nonmucinous carcinomas as well as mucinous & signet cell carcinomas were in advanced stage. This result shows that mucinous type and signet ring cell carcinomas are high grade cancers and found at advanced stage. Our study shows strong relationship between histopathological grade & prognosis.

In this study,7% cases showed vascular invasion while 8.9% cases showed perineurial invasion. Study by Zubair et al (2005) showed 16.47% vascular invasion and 2.35% perineurial invasion[10]. Symth et al (2004) reported 25.3% vascular invasion which was almost similar to our study[11]. Presence of vascular and perineurial invasion suggest an advance disease stage and decrease in the five years survival rate[12,13].

This study shows high incidence of colorectal cancer in younger age group. Therefore we recommend that preventive strategies should be carried out including screening programmes to ensure an early detection of colorectal carcinoma and thus decreased patient misery.

Conclusion:

This study showed high incidence of colorectal carcinoma in younger age group at more advance stage of disease. Mucinous type and signet ring cell carcinoma of colon are poorly differentiated and present at an advanced stage than nonmucinous adenocaincrcinomas. Therefore we recommend preventive strategies which should be carried out including screening programmes & Cancer protection programmes related to dietary counselling in our population.

References:

1. Hadi A, Shehezad AK, Zahid A, Mazhar K, Zafar I, Kamran T. A two years experiences with colorectal carcionoma. J Med Sci 2011; 19:109-113.
2. Malik KA. Colorectal carcinoma; A six years experience at a tertiary care hospital of sindh. J LUMHS 2007;6(2):74-76.
3. Laishram RS, Kailho N, Shimary R, Devi SB, Punyabati P, Sharma DC. Histopathological evaluation of colorectal carcinomas status in manipur India. Int J Pathol 2010; 8:5-8.
4. Cancer registration status 2008 in England, health

and care. Available on. www.ons.gov.uk dated 26-12 -2014.

5. Cancer registration status 1998-2000 in Ireland. Available on www.qub.ac.uk dated 26-12-2014.
6. Collective cancer registry repots 1994-2010. Shaukat khanum cancer hospital and Research center,pp3.
7. Edwrad SL, Walker AR, Lin HA et al. Inverse relationship between microsatellite instability and K-ras and p53 gene alteration in colon cancer. Am J Pathol 2001;158:1517-1524.
8. Ahmed Z, Azad NS, Yaqoob N, Hussian A, Ahsan A, Khan AN, Ahmed R, Kayani N, Pervaiz S, Hassan SH. Frequency of primary solid malignant neoplasms in different age groups as seen in our practice. J Ayub Med Coll Abbott 2007; 19:53-55.
9. Bittorf B, Merkel S,Matzel KE, Wein A,Dimmler A, Hohenberger W.Primary signet-ring cell carcinoma of colon and rectum. Langenbecks Arch Surg 2004:389:178-83.
10. Zubair A , Rooma I, Rashid A , Naila K , Shahid P , Sheema HH. Colorectal carcinoma,extent and spread in our population. Resection specimens give valuable information. J of Pak Med Asso 2005;55:483-85.
11. Symth EF, Sharma A, Sivarajasingham N, Hartley J, Monson JRT, Cawkwell L. Prognostic implications of hMLH1 and p53 immunohistchemical status in right-sided colon cancer. Dis colon rectum 2004;47 (12):2086-2091.
12. Krasna MJ, Flancbaum L, Cody RP, Shneibaum S, Ari GB. Vascular and neural invasion in colorectal carcinoma. Incidence and prognostic significance cancer 1988;61:1018-23.
13. Minsky BD, Mies C, Recht TA, Chaffey JT. Resectable adenocarcinoma of the rectosigmoid and rectum. Part II. The influence of blood vessel invasion. Cancer 1988; 61:1417-24.