Histopathological Spectrum Of Gastrointestinal Tumours

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Abstract: Background: This study was conducted to determine relative frequency of various histopathological types of gastrointestinal (GI) tumours and to evaluate them in relation to age & sex of patients and location of tumours. Methodology: Histopathological study of 91cases of gastrointestinal tumours was carried out at AMC MET Medical College from January 2011 to June 2015. Results: Of total 91 cases, peak age distribution was in the sixth decade & male to female ratio was 2.03:1. GI tumours were more common in the colorectal region (38.46%), followed by esophagus (28.57%), stomach (19.78%), small intestine (9.89%), appendix (2.20%) & anal canal (1.10%). Benign & malignant tumours comprised 10.99% & 89.01% respectively. Among malignant tumours, adenocarcinoma was the commonest type (45.68%); followed by squamous cell carcinoma (32.10%), exclusively seen in esophagus. Conclusion: Gastrointestinal tumours show a wide variation in the morphology. So, histopathological examination is mandatory for the diagnosis. [Parikh B NJIRM 2016; 7(2):14-17]

Key Words: Histopathological spectrum, Gastrointestinal Tumours, Benign, Malignant.

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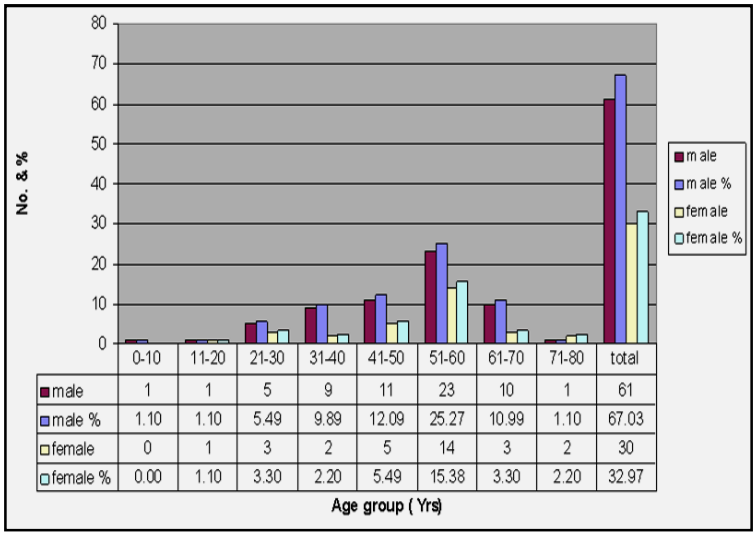
Introduction: Gastrointestinal tumours are one of the most commonly encountered problems in clinical practice with a high degree of morbidity and mortality. Colorectal cancer ranks second and stomach cancer ranks fourth among the most common tumours of the world, according to the World Cancer Report of 2000.[1] In India, according to the National Cancer Registry, esophageal and gastric cancers are the most common cancers found in men, while esophageal cancer ranks third among women after carcinoma of breast and cervix[2]. GI tumours display marked epidemiological, clinical & morphological variation. This study was undertaken to determine the relative frequency of various histopathological types of gastrointestinal tumours & to analyze the data on the basis of various parameters like age, sex, location, histopathology type etc.

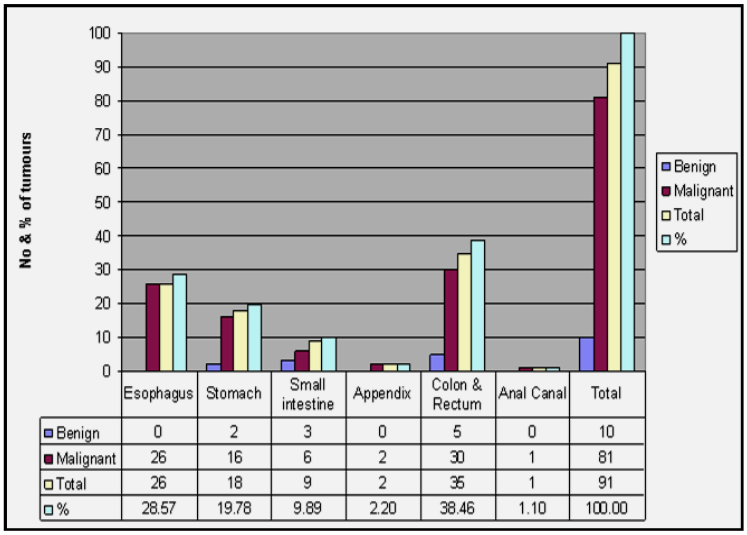
Materials and Methods: A total 91 histopathological reports of surgical specimens of GI tumours obtained at Pathology Department, AMC MET Medical College from January 2011 to June 2015 were analyzed. A detailed history of each patient regarding age, sex, chief complaints & other relevant findings was taken. The specimen was fixed in 10% formalin. Each specimen was examined grossly & representative tissue bits were sampled. Tissue bits were processed by routine paraffin embedding technique. Tissue sections of 4-5 µm thickness were cut & stained by Hematoxylin and Eosin stain. Special stains were performed whenever required. Histopathological diagnosis was given & statistical analysis was done.

Figure 1: Age and Sex Distribution of GI Tumours



	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	total
male	1	1	5	9	11	23	10	1	61
male %	1.10	1.10	5.49	9.89	12.09	25.27	10.99	1.10	67.03
female	0	1	3	2	5	14	3	2	30
female %	0.00	1.10	3.30	2.20	5.49	15.38	3.30	2.20	32.97

Figure 2: Anatomical Distribution of GI Tumours



	Esophagus	Stomach	Small intestine	Appendix	Colon & Rectum	Anal Canal	Total
Benign	0	2	3	0	5	0	10
Malignant	26	16	6	2	30	1	81
Total	26	18	9	2	35	1	91
%	28.57	19.78	9.89	2.20	38.46	1.10	100.00

GI tumours were more common in the colorectal region (38.46%), followed by esophagus (28.57%), stomach (19.78%), small intestine (9.89%), appendix (2.20%) & anal canal (1.10%). Malignant tumours (89.01%) were more common than benign tumours (10.99%). (Figure: 2). Benign tumours were common in children and adults, whereas malignant tumours were common after 50 years of age.

Among the benign tumours, adenomatous polyp was the predominant type (6/10, 60%); most of which were located in large intestine. Adenomas with villous architecture showed high grade dysplasia while tubular adenomas displayed low grade dysplasia. Other benign tumours encountered were juvenile retention rectal polyp (1/10, 10%), hamartomatous polyp (2/10, 20%) & lymphangioma (1/10, 10%).

TABLE 1: Distribution of Malignant GI Tumours

Histopathological type of tumour	Esophagus	Stomach	Small intestine	Appendix	Large intestine		Anal canal	Total	
					Colon	Rectum		No.	%
Squamous cell carcinoma	26							26	32.10
Adenocarcinoma		10	01		17	09		37	45.68
Signet ring cell carcinoma		05			01			06	7.41
Mucinous adenocarcinoma					01	01		02	2.47
Basaloid carcinoma							01	01	1.23
Carcinoid tumour			01	02				03	3.70
Non-Hodgkin's Lymphoma		01	01		01			03	3.70
GIST			03					03	3.70
Total	26	16	06	02	20	10	01	81	100

Among the malignant GI tumours, the proportion of adenocarcinoma was the highest (45.68%), followed by squamous cell carcinoma (SCC) (32.10%). Majority of adenocarcinomas were observed in large intestine (70.27%), followed by stomach (27.03%); most of which were moderately differentiated (25/37, 67.57%). By Lauren classification, predominant type of gastric adenocarcinoma was the intestinal type (10/15 cases, 66.67%) while the rest were diffuse, signet ring cell type (5/15 cases, 33.33%). In colorectal region, one case of signet ring carcinoma & two cases of mucinous adenocarcinomas were found; which were presented below 50 yrs of age. Squamous cell carcinomas were found exclusively in esophagus with moderate (21/26, 80.77 %), well (3/26, 11.54%) and poor (2/26, 7.69 %) differentiation. Out of 81 malignant cases, 19 cases (23.45%) presented with lymph node metastasis. Other tumours encountered were gastrointestinal stromal tumours (GIST), carcinoid tumour, Non-Hodgkin's lymphoma & basaloid carcinoma. (Table-1)

Discussion: In the present study, the highest distribution of GI tumours was observed in 6th decade. Similar age distribution is observed in the studies of Leena Devi et al[3] & Assem O. et al.[4] However, in the studies of Prabhakar et al[5] and Mohammad et al,[6] the peak age distribution was in the 5th & 7th decade respectively. Clear cut male preponderance was found in the present study, which is consistent with the studies of Prabhakar et al,[5] Mohammad et al[6] and Shahid Jamal et al.[7] This gender ratio favoring males could be reflective of the fact that males are exposed to more risk factors than females.

In our study, the commonest site of GI tumours was the colorectal region (38.46%), followed by esophagus (28.57%).The studies performed by Thomas et al[8] and Shahid Jamal et al[7] also showed higher incidence of colorectal tumours; 79.67% & 45.23% respectively. Geographic differences for colorectal cancers are probably explained by dietary and other environmental exposures.

In present study, most of the benign tumours were adenomatous polyps. Adenomatous polyp with high grade dysplasia is considered as precancerous lesion & high grade dysplasia is typically noted in polyp with villous pattern. Tubular adenoma is more common

than villous adenoma[9]. However, we noted 30% villous adenomas & 20% tubular adenomas.

Malignant tumours outnumbered the benign tumours. In the esophagus, SCC was the predominant tumour. Similar finding is noted in the studies of Krishnappa Rashmi[10], Shahid Jamal et al[7] and Thomas et al[8]; which showed proportion of SCC to be 100%, 91% & 76% respectively. In the present study, not a single case of esophageal adenocarcinoma was found. Though the incidence of esophageal adenocarcinoma is on the rise in many countries including India, our study did not prove that. This could possibly be explained by the variability of predisposing factors among different population.

Among gastric malignant tumours, adenocarcinoma was the predominant type observed (62.5%). This is consistent with the studies of Leena Devi et al,[3] Mohammed et al,[6] & Lavanya et al,[11] which showed gastric adenocarcinoma to be 85.3%, 100% & 65.7% respectively. Signet-ring cell carcinomas are not typically graded but are high-grade and would correspond to grade-3. Special stains (PAS, mucicarmine or alcian blue) help to detect sparse, dispersed signet ring cells in the stroma. Not a single case of early gastric carcinoma was found in our study while in a large scale study of Tadashi Terada[12] in Japan, significant numbers of early gastric carcinoma were identified. This is because, in Japan, many persons undergo gastric endoscopy as a screening procedure & so gastric carcinoma is detected in an early stage.

Curiously, the small intestine is an uncommon site for tumour despite its great length and vast pool of dividing cells. We found GIST to be the predominant tumour in small intestine. Josephine Issakov MD et al[13] noted 21.05% GIST in small intestine next to the frequency in stomach (71.92%). Ampullary carcinoma is common in small intestine; which we reported in one case. Carcinoid tumour is commonly seen in small intestine & appendix.

In our study, colorectal adenocarcinomas comprised 86.67% of colorectal malignant tumours which is consistent with the studies of Abdulkareem FB et al,[14] and Lavanya et al;[11] who noted 87.14% & 85.7% colorectal adenocarcinomas respectively. Mucinous & signet ring carcinoma in colorectal region comprised less than 10% in different studies;[14,11] including ours. In our study, all cases of mucinous & signet ring carcinomas of colon were presented below 50 yrs of age with the youngest one being of 38 yrs. This is consistent with the findings of DN Dijxhoorn et al,[15] who noted occurrence of mucinous adenocarcinoma to be significantly more in younger (<50 years) than older (≥ 50 years) patients. Since only one case of basaloid carcinoma of anal canal was reported in our study, comparison with other studies was insignificant.

Conclusion: Gastrointestinal tumours were more common in the 6th decade & showed male preponderance. Predominantly affected site was the colorectal region. Overall, adenocarcinoma was the predominant type. However, in esophagus, predominant type was the squamous cell carcinoma. Tumours of the GI tract show a wide variation in the morphology, making the histopathological examination crucial for the diagnosis & for prognostic purpose. Early diagnosis and treatment is beneficial for better management and is imperative in providing better quality of life to the patient.

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