

A Histopathological Spectrum of Gastrointestinal Tract Lesions In A Tertiary Care Hospital: An Epidemiological Study For Four Years

Dr Chhanda Das¹, Dr Namrata Maity¹, Dr Madhumita Mukhopadhyay¹, Dr
Bedabrata Mukhopadhyay², Dr Keya Basu¹, Dr Madhukumari¹.

¹(Dept of pathology IPGME&R, Kolkata, India)
²(Dept of biochemistry, IMS, BHU, Varanasi, India)

Abstract :

Background: Diseases of Gastro Intestinal Tract (GIT) are more common than any other systems in human body. GIT is the most commonly involved site of an extra nodal Non-Hodgkin's lymphomas (NHL). Adenocarcinomas are more common in intestine. However, malignant tumors are less common than benign ones in small intestine.

Aims and Objectives: To study the age, sex, and site wise distribution of various types of benign and malignant GI lesions.

Materials and methods: It was a retrospective study over four years. Altogether 344 GIT specimens were fixed in 10% Formalin and processed in automatic tissue processor. Routine Hematoxylin and Eosin stain and special stains were done and examined under the light microscope.

Results: Out of total 14,720 specimens 344 cases (2.34%) were GIT lesions, both benign and malignant. Among them 5 cases (1.45%) of ulcerative colitis, 2 cases (0.58%) of Crohn's disease, 7 cases (2.03%) of granulomatous lesions 7 cases (2.03%) of oesophageal squamous cell carcinoma(SCC), 4 cases (1.16%) of dysplastic polyps, 2 cases (0.58%) of carcinoid tumors and 6 cases (1.74%) of Gastro intestinal stromal tumors (GIST) were found. Adenocarcinoma being the most common type of gastric malignancy with 290 cases (84.3%). The second most common tumor was 21 cases (6.1%) of NHL.

Conclusion: GIT represents 2.34% of all the lesions. Most common lesion of the oesophagus was squamous cell carcinoma whereas adenocarcinomas were the most common lesion of stomach and large intestine followed by GIST and NHL. The common lesions of small intestine were GIST followed by NHL and adenocarcinoma.

Key words: Adenocarcinoma, Gastro intestinal stromal tumor (GIST), Non-Hodgkin's lymphoma (NHL) Squamous cell carcinoma (SCC),).

I. Introduction

Cancer is a major public health problem all over the world, accounting for almost one in every four deaths.^[1] The definitive diagnosis of gastrointestinal lesions largely depends on the histopathological confirmation and is one of the bases for planning proper treatment regimen. Gastrointestinal (GI) cancers account for 20% of estimated new cancer cases and 15% of estimated death worldwide^[2,3,4,5]

Oesophageal cancer is the eighth most common cancer worldwide and the sixth most common cause of cancer-related death. Cancer of the oesophagus accounts for 5.5% of all malignant tumors of the GI tract.^[1] The most common carcinoma of the oesophagus is squamous cell carcinoma. Adenocarcinoma predominantly arises from Barrett's oesophagus and long standing gastrooesophageal reflux disease. It also shows strong gender bias, being seven fold more common in men.^[6]

Gastric Cancer is still the fourth most common cancer in the world. It accounts for 10% of new cancer cases in the world.^[1] Among the malignant tumors that occur in the stomach, adenocarcinoma is overwhelmingly the most important and the most common malignancy (90-95%). After the age of 40, the incidence of gastric cancers gradually increases with age, the highest incidence being after the age of 80.^[7,8] Helicobacter pylori infection and a high dietary salt intake are the risk factors for the development of gastric adenocarcinoma. Approximately 25-50% of all Non-Hodgkin's lymphomas arise at extra nodal sites with the gastrointestinal tract as the commonest extra nodal site accounting for about 4-20% of all, especially in Asian countries Lymphoma constitute up to 10% of all gastric malignancies.^[9] Most gastrointestinal mesenchymal neoplasms are Gastro intestinal stromal tumors (GISTs). Tumors larger than 5 cm in diameter with signs of necrosis and bleeding are parameters of malignant nature of GIST.

Small bowel, which represents 75% of the length of the alimentary tract, constitutes 2% of all malignant neoplasms of the gastrointestinal (GI) tract occur in the small intestine. Most commonly found lesions are NHL etc.^[10]

Virtually 90 % of all cancers in the large intestine are adenocarcinomas. They arise as polyps and produce symptoms relatively early and at a stage generally curable by resection. The peak incidence of colorectal carcinoma is 60-70 years of age and fewer than 20 % of cases occur under 50 years.^[11] Colorectal carcinoma in patients under 40 years usually has a poor prognosis. Apart from that, dysplastic polyp, ulcerative colitis, granulomatous lesions are also found.

II. Materials And Methods

This is a four years retrospective study done at our hospital, Kolkata from 2010 -2013. There were altogether 344 GIT specimens. The entire specimens were fixed in 10% Formalin overnight or more according to the nature and size of the specimens. They were processed in an Automatic tissue processor. The sections were prepared with microtome and routine Haematoxylin and Eosin stain and special stains were done when required and were examined under the light microscope.

III. Results

Total numbers of specimens were 14720. Among them 344 (2.34%) were GIT specimens, both benign and malignant. Some cases of lesions with malignant potential like dysplastic polyps, carcinoid tumors were also found. Among the 8 cases 7cases (87.5 %) were Squamous cell carcinoma followed by 1 case (12.5%) of adenocarcinoma in oesophagus. The most common age group for Squamous cell carcinoma was 46 to 60 years and common in males. Single case of adenocarcinoma was found in a male in the age group of 61 to75 years . [Table1]

Of the total 216 lesions of the stomach, 198 cases (91.67%) were adenocarcinoma. In which 139 cases (70.2%) were males and 59 cases (29.8%) were females. The male to female ratio was 2.4:1. 3 cases (1.39%) were GISTs and 11 cases (5.09%) were Non-Hodgkin’s lymphoma. 3 cases (1.39%) of granulomatous lesions and 1 case (0.46%) of dysplastic polyp was also found. For adenocarcinoma the most common age group was 46 to 60 years in both sexes (55.55%). [Table 2]

Among the 25 cases in small intestine only 8 cases (32%) were adenocarcinoma and most commonly found in 61 to 75 years age group. Non-Hodgkin’s lymphoma was found to be the most common lesion of small intestine with 10 cases (40%). GIST was the third most common lesion with 3 cases (12%). [Table 3] Among the various lesions of large intestine, 83 cases (87.37%) were adenocarcinomas. Male were 59 (71.1%) and 24 (28.92%) were female and male to female ratio was 2.46:1. The most common age group was 61 to 75 years in males and 46 to 60 years in females. 2 cases (2.11%) of carcinoid tumor were found. [Table 4]

Table no. 1: Age, sex distribution and types of oesophageal lesions

Age/ sex	Adenocarcinoma			Squamous cell carcinoma			Grand total
	M	F	Total	M	F	Total	
0 – 15	0	0	0	0	0	0	0
16 – 30	0	0	0	0	0	0	0
31 – 45	0	0	0	1	0	1	1
46 – 60	0	0	0	4	1	5	5
61 – 75	1	0	1	1	0	1	2
>75	0	0	0	0	0	0	0
Total	1	0	1 (12.5%)	6	1	7 (87.5%)	8 (100%)

Table no. 2: Age, sex distribution and types of gastric lesions

Age/ sex	Adeno Carcinoma		NHL		GIST		Granulomato us lesions		Dysplastic polyps		Grand total
	M	F	M	F	M	F	M	F	M	F	
0 – 15	0	0	0	0	0	0	1	0	0	0	1
16 – 30	9	2	2	0	0	0	0	1	0	0	14
31 – 45	9	3	7	0	0	1	1	0	0	0	21
46 – 60	76	34	1	0	1	0	0	0	1	0	113
61 – 75	29	13	1	0	1	0	0	0	0	0	44
>75	16	7	0	0	0	0	0	0	0	0	23
Sub Total	139	59	11	0	2	1	2	1	1	0	216
Total	198 (91.67%)		11 (5.09%)		3 (1.39%)		3 (1.39%)		1 (0.46%)		

Table no. 3: Age, sex distribution and types of small intestinal lesions

Age group	Adeno-carcinoma	NHL	GIST	Granulomatous lesions	Dysplastic polyps	Ulcerative colitis	Crohn,s disease	Grand total
0 – 15	0	0	0	1	0	0	0	1
16 – 30	0	2	0	0	1	1	1	5
31 – 45	3	5	3	0	0	0	0	11
46 – 60	0	2	0	0	0	0	0	7
61 – 75	5	1	0	0	0	0	0	1
>75	0	0	0	0	0	0	0	0
Total	8(32%)	10(40%)	3 (12%)	1 (4%)	1 (4%)	1 (4%)	1 (4%)	25

Table no. 4: Age, sex distribution and types of large intestinal lesions

Age/sex	Adeno-carcinoma		Dysplastic polyps		Granulomatous lesions		Crohn,s disease		Ulcerative colitis		Carcinoid tumor		Grand total
	M	F	M	F	M	F	M	F	M	F	M	F	
0 – 15	0	0	0	0	1	1	0	0	0	0	0	0	2
16 – 30	5	2	0	0	1	0	0	0	2	0	1	0	11
31 – 45	16	9	1	0	0	0	1	0	1	1	0	1	30
46 – 60	10	11	0	1	0	0	0	0	0	0	0	0	22
61 – 75	26	2	0	0	0	0	0	0	0	0	0	0	28
>75	2	0	0	0	0	0	0	0	0	0	0	0	2
Sub Total	59	24	1	1	2	1	1	0	3	1	1	1	95
Total	83 (87.37%)		2 (2.11%)		3 (3.16%)		1 (1.05%)		4 (4.21%)		2 (2.11%)		

IV. Discussion

Among the total no of 14,720 specimens received in our hospital during four year study period, 2.43% were gastrointestinal tract lesions.

Oesophagus:

Of the 8 cases of oesophageal malignant tumors, 7 (87.5%) were squamous cell carcinoma. The most common age group was 46 to 60 years. James M. Crawford also found the common age to be more than 50 years of age which is similar to our study.^[12] Squamous cell carcinomas occur most commonly in the middle or lower third of the esophagus and present clinically with progressive dysphagia, weight loss, anemia, or, rarely, esophageal perforation.^[13] Primary esophageal adenocarcinomas arise in the lower esophagus within a background of the glandular (columnar) metaplasia of Barrett oesophagus.

Stomach:

Among the malignant tumors of the stomach, 198 cases (91.67%) cases were adenocarcinoma and male to female ratio was 2.4:1. Most common age group was 46 to 60 years of age with 110 cases, followed by 61 to 75 years with 42 cases. In our study NHL was found to be the second commonest tumor with 11 cases (5.09%). Gastrointestinal tract is the most common extranodal site involved by lymphoma with the majority being Non-Hodgkin type. Although lymphoma can involve any part of the gastrointestinal tract, the most frequent sites in order of its occurrence are the stomach followed by small intestine and ileocecal region.^[14] Stomach is the most commonly involved site (60%-75%) in gastrointestinal tract followed by small bowel, ileocecal region and rectum.^[15] Gastric lymphoma accounts for 3%-5% of all malignant tumors of the stomach.^[16] James M. Crawford found 90 to 95% cases of adenocarcinoma and male to female ratio was 2:1. ¹²Our study showed slightly higher percentage than his study. M. Miettinen found 2.2% malignant GIST and most common age group was 6th to 8th decade.^[17] Our study showed slightly lower (1.39%) than his study and age was similar yet we also found in younger age group. GISTs account for approximately 2% of all malignant gastric tumors. The incidence is between 14.4 and 11 cases per 1 million.^[18] The sex incidence is equal and the peak incidence is between the fifth and eighth decades of life. Among other cases granulomatous lesions and dysplastic polyps were found.

Small Intestine:

The commonest malignant tumors of small intestine we found were Non- Hodgkin's lymphoma 10 cases (40%). Small intestinal lymphomas account for 20% to 40% of primary gut lymphomas in Western populations, and they are among the most common malignant tumors of the small intestine. The tumors occur more commonly in men and peak in the seventh decade.^[19,20] Two-thirds are B-cell lesions, and one-third are T-cell lesions. Diffuse large B-cell lymphoma (DLBCL) is the most common lymphoma of the intestines,

accounting for around 50% of all lymphomas.^[21] Another study done by Domizio P et al. found 20-40% which is similar to our study.^[20] In this study 8 cases (32%) were adenocarcinomas, and the common age group was 61 to 75 years.. Adenocarcinomas of the small intestine are rare and when present are most common in the periampullary duodenum; jejunal and ileal adenocarcinomas are particularly rare.^[22,23] In our study GIST were the third most common tumors with 3 cases (12%). whereas M. Miettinen found 14% and were all malignant GISTs.^[18] Our study showed slight lower percentage.

Large Intestine:

Among the malignant tumors of the large intestine, 83 cases (87.37%) were adenocarcinomas and common age group was 46 to 60 years in case of females and 61 to 75 years in case of males. Male to female ratio was 2.46:1. James M. Crawford found 90% and age group was 60 to 70 years of age and male to female ratio was 2:1.^[12] His study showed higher percentage than ours but the male to female ratio was almost similar. Our study showed 4 cases of granulomatous lesions. 2 cases of carcinoid tumors were also found.

V. Conclusion

Among all the lesions, gastrointestinal tract lesions accounted for 2.34%, comprising various malignant tumors and benign lesions. The most common malignant tumor of the oesophagus was squamous cell carcinoma. The most common malignant tumor of stomach was adenocarcinoma with and that of the small intestine was NHL and GIST. But benign tumors were more common in small intestine than malignant ones. And lastly adenocarcinomas were found to be more common in large intestine. Overall benign tumors are more common than malignant ones in GIT. But in our study malignant lesions were found to be much higher. It may be due to less availability of benign specimens in our Institute.

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