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A study of histopathological spectrum of gastrointestinal tract lesions in a tertiary care centre

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Abstract
Background: Gastrointestinal tract is an important site for a wide variety of lesions especially neoplastic which is one of the major causes of morbidity and mortality worldwide and include both benign and malignant lesions. Histopathological typing and knowledge about their prognosis help the clinicians in effective management of the individual patient.
Aims and Objectives: To assess the histopathological spectrum of various gastrointestinal lesions and their distribution according to age, sex and site presenting in a tertiary care centre.
Materials and Methods: The present retrospective study of 400 patients having gastrointestinal lesions was undertaken in the department of Pathology, Civil hospital, Ahmedabad over a period of six months from July 2019 to December 2019. The tissue samples obtained were grossed, processed and reported. Patient case sheets were studied and analysed for data.
Results: Amongst 400 cases of gastrointestinal tract lesions, majority were non neoplastic comprising 67% and neoplastic lesions constitute 33%, out of which malignant lesions constituted 30.25% while benign lesions constituted 2.75%. In present study most cases of gastrointestinal tract lesions were found in age group 41-50 years with male preponderance (male to female ratio 1.5:1). Colorectum was the most commonly involved site accounting for 29.75% followed by stomach 21.75% and small intestine 19.5%.
Conclusion: Histopathological evaluation is the gold standard for the early detection of gastrointestinal tract lesions especially malignant one hence it helps in their early diagnosis and management thus providing better quality of life to the patient.

Keywords: Gastrointestinal tract lesions, neoplastic, non-neoplastic, benign, malignant

Introduction
Gastrointestinal tract lesions are the most common pathology seen in routine clinical practice.
It can affect both upper gastrointestinal tract that includes oesophagus, stomach and first part of small intestine (duodenum) and lower gastrointestinal tract that includes small intestine, large intestine up to anal canal. Gastrointestinal tract lesions are broadly classified under two headings: 1) Non neoplastic lesions and 2) Neoplastic lesions which includes both Benign and Malignant lesions.
Non neoplastic lesions include Gastric ulcer, acute and chronic inflammation, tubercular inflammation, Traumatic lesions, haemorrhoids etc.
Benign lesions include submucosal lipoma, mucocele etc and malignant lesions include epithelial neoplasms (adenocarcinoma), stromal neoplasms, metastatic carcinoma etc. [1-3].
Gastrointestinal neoplasms accounting for a large proportion of all neoplasms is the major cause of morbidity and mortality, affecting populations in all countries and all regions. The various histopathological type of neoplasm at different gastrointestinal sites also differ in their incidence and prognosis. Neoplasms arising from the mucosa of stomach and intestines predominate over mesenchymal and stromal tumours [4]. Adenocarcinomas are common all over the gastrointestinal tract especially colorectum [5-8].
Among men, 3rd most common site for carcinoma is colorectum (10%) and 4th most common site is stomach (8.5%). Among women, 2nd most common site for carcinoma is colorectum (9.2%) and 4th most common site is stomach (4.8%) [9]. Gastrointestinal tract is the most commonly involved site of an extra nodal Non-Hodgkin's Lymphomas [4]. Oesophageal Carcinoma is the 8th most common cancer worldwide [9].

Squamous cell carcinoma is the most common neoplasm of oesophagus. Colorectal carcinoma is the fourth most common cause of death from cancer worldwide [9].

H. Pylori is the major environmental cause of development of gastric neoplasm [9]. Well differentiated neoplasms composed of any of the cells of the diffuse neuroendocrine system, account for between 11 and 41% of all gastrointestinal endocrine neoplasms [5-8].

The present study has been undertaken to determine the relative frequency of various histopathological type along with correlation of the occurrence, incidence and demographic data of gastrointestinal tract lesions with other available studies. The definitive diagnosis of gastrointestinal tract lesions is one of the basis for planning proper treatment regimen. Histopathological types and knowledge about their prognosis aids the clinicians in effective management of the patients.

Materials and Methods

The present study on 'Histopathological spectrum of gastrointestinal tract lesions in a tertiary care centre' was carried out in the department of Pathology, Civil hospital, Ahmedabad from July 2019 to December 2019.

The materials were collected in the form of biopsy and resected specimens of gastrointestinal tract along with the clinical profile of the patient with supportive investigations. The superficial biopsy, biopsy with artefacts and inadequate material were excluded from the study. This was correlated with gross and histopathological examination of respective surgical specimen. For histopathological study, the specimens were fixed in 10% formalin, subsequently dehydration, clearing, embedding in paraffin wax were carried out. Blocks were made, sections of 5 um thickness were cut and stained with Harris Haematoxylin and eosin stain. Special staining like Periodic acid Schiff stain, etc. may be used wherever necessary.

Results

The present study comprises histopathology of 400 gastrointestinal tract lesions studied in the Department of Pathology, Civil Hospital, Ahmedabad from July 2019 to December 2019. The results and observations were organised and interpreted in light of clinical, sex, site and pathological findings of various regions of gastrointestinal tract and results were compared with other researchers.

Table 1: Age wise distribution of gastrointestinal tract lesions

Age (years)	Non neoplastic		Neoplastic				Total	
			Benign		Malignant		No.	Percent (%)
	No.	Percent (%)	No.	Percent (%)	No.	Percent (%)		
0-10	21	5.25	2	0.5	0	0	23	5.75
11-20	24	6	1	0.25	4	1	29	7.25
21-30	62	15.5	0	0	11	2.75	73	18.25
31-40	44	11	1	0.25	20	5	65	16.25
41-50	47	11.75	5	1.25	29	7.25	81	20.25
51-60	36	9	1	0.25	20	5	57	14.25
61-70	26	6.5	1	0.25	24	6	51	12.75
71-80	5	1.25	0	0	9	2.25	14	3.5
81-90	2	0.5	0	0	4	1	6	1.5
91-100	1	0.25	0	0	0	0	1	0.25
Total	268	67	11	2.75	121	30.25	400	100

In Table 1, amongst a total of 400 cases of gastrointestinal tract lesions, most non neoplastic and neoplastic cases are seen in age group 21-30 years and 41-50 years respectively. Overall majority of gastrointestinal tract lesions are seen in age group 41-50 years.

Table 2: Sex wise distribution of gastrointestinal tract (GIT) lesions

Site		Non neoplastic		Neoplastic				Total = 400	
				Benign		Malignant			
		Male	Female	Male	Female	Male	Female	Male	Female
Upper GIT	Oesophagus	6	1	1	0	8	2	15	3
	Stomach	48	20	1	0	10	8	59	28
	Duodenum	2	3	1	0	7	3	10	6
Lower GIT	Small intestine	31	22	0	0	15	10	46	32
	Appendix	26	25	2	0	4	3	32	28
	Colorectum	32	36	3	1	27	20	62	57
	Anus	13	3	2	0	4	1	20	3
	Total	158	110	10	1	75	46	244	156

In Table 2, the present study showed a male preponderance for all sites in the gastrointestinal tract with male to female ratio 1.5:1.

Table 3: Anatomical site wise distribution of gastrointestinal tract (GIT) lesions

	Site	No.	Percentage (%)
Upper GIT	Oesophagus	18	4.5
	Stomach	87	21.75
	Duodenum	16	4

Lower GIT	Small intestine	78	19.5
	Appendix	60	15
	Colorectum	119	29.75
	Anus	22	5.5
	Total	400	100

In Table 3, the present study shows that colorectum was the most commonly involved site accounting for 29.75% followed by stomach (21.75%) and small intestine (19.5%).

Table 4: Distribution of various gastrointestinal tract (GIT) lesions

Type of lesion	No. of cases	Percentage (%)
Non-neoplastic	268	67
Benign	11	2.75
Malignant	121	30.25
Total	400	100

In Table 4, the present study shows that amongst 400 cases, non-neoplastic cases constituted 268 cases (67%) and neoplastic constituted 132 cases (33%) out of which malignant lesions were 121 cases (30.25%) while benign lesions constituted 11 cases (2.75%) only.

Table 5: Distribution of various non-neoplastic GIT lesions- histopathological type

Non neoplastic lesions	No. of cases	Percentage (%) out of total 400 cases
Acute Inflammation	49	12.25
Chronic inflammation	64	16
Tubercular inflammation	38	9.5
Amoebiasis	3	0.75
Actinomycosis	3	0.75
Hirschsprung disease	1	0.25
Meckel's diverticulum	10	2.5
Intussusception	1	0.25
Atresia	3	0.75
Gastric ulcer	5	1.25
Benign peptic perforation	24	6
Traumatic perforation	19	4.75
Haemorrhoids	8	2
Anal fistula	6	1.5
Ulcerative colitis	27	6.75
Gangrenous lesion	7	1.75
Total	268	67

Table 6: Distribution of various neoplastic GIT lesions - Histopathological type

Type	Neoplastic lesions	No. of cases	Percentage (%) out of total 400 cases
Benign	Barret oesophagus	1	0.25
	Submucosal lipoma	2	0.5
	Mucosal hyperplasia with mild dysplasia	6	1.5
	Mucocele	2	0.5
Malignant	Adenocarcinoma	75	18.75
	Moderately differentiated squamous cell carcinoma	4	1
	Well differentiated squamous cell carcinoma	7	1.75
	Signet ring cell carcinoma	6	1.5
	Gastrointestinal stromal tumour	8	2
	Neuroendocrine Tumour	6	1.5
	Mucinous adenocarcinoma	10	2.5
	Mixed carcinoid adenocarcinoma	1	0.25
	Amelanotic melanoma	3	0.75
	Non-Hodgkin's lymphoma	1	0.25
	Total	132	33

In Table 5 and 6, present study shows that acute, chronic and tubercular inflammation were the most common non neoplastic lesions followed by ulcerative colitis. Adenocarcinoma was most common neoplastic lesion in the gastrointestinal tract followed by mucinous adenocarcinoma.

Discussion: In the present study, 400 cases of gastrointestinal tract lesions were analysed from July 2019 to Dec 2019 with reference to parameters like age, sex, anatomical site and histopathological type. The results and observations were organised and interpreted and were compared with studies of other researchers.

Table 7: Comparison of age and sex distribution in malignant neoplasm

Authors	Age group (years) with high incidence	Male: Female ratio
Rajesh Y *et al.* [10]	51-60	1.78:1
Chhanda *et al.* [11]	46-60	2.5:1
Twinkle C *et al.* [12]	51-60	1.5:1
Present study	41-50	1.5:1

In Table 7, similar to other researchers the present study shows highest incidence of malignant neoplasms in age group 41-50 years with male to female ratio 1.5:1.

Table 8: Comparison of site in upper gastrointestinal tract lesions

Authors	Oesophagus	Stomach	Duodenum	Total
Islam *et al.* [13]	22	73	2	97
Aparajita *et al.* [14]	12	57	3	72
Twinkle C *et al.* [12]	3	23	2	28
Present study	18	87	16	121

The upper Gastrointestinal tract lesions in present study shows maximum number of lesions in stomach i.e. 87 cases (21.75%) followed by oesophagus and duodenum, 18 cases (4.5%) and 16 cases (4%) respectively similar to other studies mentioned in the Table 8.

Table 9: Comparison of site in lower gastrointestinal tract lesions

Authors	Small intestine	Appendix	Colorectal	Anal canal	Total
Shah N *et al.* [15]	35	116	196	53	400
Nanavati *et al.* [16]	73	43	72	12	200
Twinkle C *et al.* [12]	44	68	22	18	152
Present study	78	60	119	22	279

Similarly, in lower Gastrointestinal tract lesions, the present study shows maximum number of lesions in colorectum having 119 cases (29.75%) followed by Small intestine, appendix, anal canal having 78 cases (19.5%), 60 cases (15%), 22 cases (5.5%) respectively which is comparable to studies of other researchers mentioned in the Table 9.

Table 10: Comparison according to the type of lesions

Authors	Non neoplastic	Neoplastic	Total
Rajesh Y *et al.* [10]	735	53	788
Chanda *et al.* [11]	330	14	344
Twinkle C *et al.* [12]	107	73	180
Present study	268	132	400

Similarly, non-neoplastic lesions are more than neoplastic lesions similar to studies of other researchers mentioned in Table 10.

Conclusion

In conclusion, our study of analysis of gastrointestinal tract lesions throws a light on the pattern of Gastrointestinal tract lesions seen in our institute and histopathology which is regarded as the most sensitive and specific diagnostic method for the early detection of Gastrointestinal tract lesions. The study of relative frequency of various histopathological type along with correlation of the occurrence, incidence and demographic data of gastrointestinal tract lesions with other available studies aids the clinicians in effective management of the patients.

Conflict of interest: None

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