

## Clinico Histopathological Overview of GIT Lesions in a Rural Hospital

Rajesh Y. Thakur<sup>1</sup>, Dhiraj B. Nikumbh<sup>2\*</sup>, Sunil Y. Swami<sup>3</sup>

<sup>1</sup>Lecturer, SBH GMC, Dhule, <sup>2</sup>Associate Professor, ACPM Medical College, Maharashtra, <sup>3</sup>Associate Professor, GMC, Ambajogai

**\*Corresponding Author:**

Email: drdhirajkumbh@gmail.com

### Abstract

**Introduction:** Gastrointestinal tract (GIT) is the important site for wide variety of lesions especially malignant tumors. GIT cancers constitute 15-25% of all cancer burdens. The primary aim of GI pathology is to provide essential diagnostic and prognostic information allowing physicians and surgeons the best clinical management of the individual patient.

**Aim:** We undertake this study to find out the various histopathological spectrum of the GIT lesions and to correlate them with clinical presentations, age, sex and to find the density of various GIT lesions in rural area.

**Materials and Methods:** The prospective study of 800 patients having gastrointestinal lesion were included in this study over a period of 30 months from Jan 2012 to July 2014. The materials were collected in the form of biopsy and resected specimens of gastrointestinal tract with relevant clinical history. The superficial biopsy, biopsy with artifacts and inadequate material/history were excluded from the study. The histopathological diagnoses were categorized as inflammatory and tumors -benign and malignant lesion.

**Results:** Amongst 800 cases studied of GI lesions, majority were inflammatory lesions as acute appendicitis and chronic appendicitis comprising 88.5% with a peak incidence in the 20-30 decades. In tumors, malignant lesions of gastrointestinal tract constituted 88.3% while benign tumor constituted 11.6% only. Colorectal cancers were seen having highest frequency (61.5%) followed by oesophagus (18.8%), stomach (7.5%), small intestine (1.8%). Male patient were outnumbered by female patients in both inflammatory and tumors category.

**Conclusion:** Histopathological evaluation is the gold standard for the early detection of GI tract lesions especially malignant one hence it helps in their early management. Our study of gastrointestinal tract lesions throws a light on early diagnosis by histopathology beneficial for the patients in rural area.

**Key Words:** GIT, Tumors, Histopathology, Malignant, Adenocarcinoma.

Access this article online	
Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2394-6792.2016.00058.2

body. Among all the lesions of the body, GIT represents 5.38% with 28.72% of malignant tumours<sup>4</sup>.

Today gastrointestinal (GI) pathology is accepted as one of the largest sub-specialties within general histopathology. The primary aim of GI pathology is to provide essential diagnostic and prognostic information allowing physicians and surgeons the best clinical management of the individual patient.<sup>5</sup> This stimulates us to undertake this study and correlate GI pathology with clinical findings.

### Introduction

Worldwide gastrointestinal tract (GIT) malignancies stand among top ten leading sites for cancer.<sup>1</sup> GIT cancers constitute 15-25% of all cancer burdens. Very remarkable and striking differences are observed in the occurrence of this cancer in different regions and different races of the world. They remain asymptomatic for long periods and are often very advanced at the time of diagnosis.<sup>2</sup>

Because of its relatively large surface area cancer of the GIT are quite common, and are rather difficult to treat because of relative inaccessibility of the portions of the GIT.<sup>3</sup> GIT is a hollow tube extending from the oral cavity to the anus that consists of anatomically distinct segments, including the esophagus, stomach, small intestine, colon, rectum, and anus.<sup>4</sup> The diseases of GIT are more common than any other systems of the

### Materials and Methods

The prospective study of eight hundred patients having gastrointestinal lesion were included in this study over a period of 30 months from Jan 2012 to July 2014 in Dept. of Pathology, Rural hospital of our college. 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 paraffin embedded sections stained by H and E stain. Special staining like PAS, ZN etc. may be used wherever necessary. The histopathological diagnosis were

categorised as inflammatory, tumours-benign and malignant lesions. The results and observation were organised and interpreted in light of clinical, gender and pathological findings of various regions of GIT and results were compared with other researchers.

### Results & Observations

The present study comprises histopathology of 800 gastrointestinal tract lesions studied in the Department of Pathology in rural hospital over a period of two and half years (January 2012 to July 2014).

Amongst 800 cases, there were 728 cases of inflammatory lesions. Thus it observed that inflammatory lesions constituted most of the cases (91.0%), benign and malignant lesions accounted for only 0.87% and 6.6% of all gastrointestinal tract lesions respectively. Out of 60 cases of gastrointestinal tract tumours malignant lesions constituted 88% cases, while benign lesions constituted 11%.

**Table 1: Distribution of Various Gastrointestinal tract lesions**

Type of lesion	No. of cases	Percentage (%)
Inflammatory	728	91.0
Benign	7	0.87
Malignant	53	6.6
Miscellaneous	12	1.5
Total	800	100

**Table 2: Histopathological diagnosis of inflammatory lesions of GIT**

Histopathological diagnosis	No. of cases	Percentage (%)
Acute Appendicitis	267	36.35
Acute Ulcerative Appendicitis	43	5.8
Acute Necrotizing Appendicitis	30	4.1
Acute on chronic Appendicitis	34	4.6
Chronic Appendicitis	205	28.1
Follicular Appendicitis	62	8.5
Gangrenous Appendicitis	03	0.4
Granulomatous Appendicitis	01	0.1
Gangrenous Stomach	01	0.1
Chronic Inflammatory lesions(1E,8S,5SI,5LI,5AC)	24	3.2
Acute Inflammatory lesions(1R,1SI,2LI)	04	0.5
Fistula in Ano	10	1.3
Gangrenous Intestine (LI)	17	2.3
Ileal Perforation(SI)	09	1.2
Perforation Peritonitis(SI)	01	0.1
Tuberculosis(SI,LI)	02	0.2
Meckle's diverticulitis(12SI)	12	1.9
Necrotising Enterocolitis (SI)	01	0.1
Inflammatory, Solitary Rectal Ulcer	01	0.1
Proctosigmoiditis	01	0.1
Total	728	100

Thus, acute appendicitis [Fig. 1a] and chronic appendicitis were the most common inflammatory lesions comprising 645 cases (88.4%). Granulomatous intestine comprises 2.3% of the cases.[Fig. 1b]

**Table 3: Site wise distribution of GI Inflammatory lesion**

Site	No. of cases	Percentage (%)
Esophagus(E)	01	0.13
Appendix(A)	645	88.5
Stomach(S)	09	1.2
Small Intestine(SI)	29	3.9
Large Intestine(LI)	26	3.5
Rectum(R)	03	0.40
Anal canal(AC)	15	2.0
Total	728	100

In the present study, appendix was the most commonly involved site accounting for 88.5% followed by small intestine (3.9%) and large intestine (3.5%).

**Table 4: Gender distribution of GI Inflammatory lesions**

Site	Sex		Total
	Male	Female	
Esophagus	01	00	01
Stomach	08	01	09
Small Intestine	15	14	29
Appendix	409	236	645
Large Intestine	13	13	26
Rectum and anal canal	13	05	18
Total	459	269	728

Present study showed male preponderance for all sites in the gastrointestinal inflammatory lesions with 459 (63.0%) male patients and 269 (37.0%) female patients.

**Table 5: Age wise distribution of GI Inflammatory lesions**

Age (Yrs.)	Esophagus	Stomach	Small Intestine	Appendix	Large Intestine	Rectum and anal canal	Total
0-1	0	0	1	3	2	0	6
1-10	0	0	7	37	1	1	46
10-20	0	0	7	190	1	2	200
20-30	0	0	2	253	1	4	260
30-40	0	1	2	94	3	6	106
40-50	0	3	6	29	5	4	47
50-60	0	2	2	19	6	1	30
60-70	1	1	1	16	4	0	23
70-80	0	1	1	4	3	0	9
80-90	0	1	0	0	0	0	1
Total	1	9	29	645	26	18	728

Amongst a total of 728 cases of gastrointestinal tract lesions more than half of all cases are seen in the age group 10-40 years with highest frequency within 20-30 years of age (35.0%). The youngest case was 3 days old and oldest case was 86 years old. Our age wise distribution is slightly high; it may be because of large number of cases studied in the present series.

It was observed that, out of 348 malignant lesions of all sites in the body, 60 cases were of gastrointestinal malignancies, thus constituting 17.24% of all malignant lesions during the study period.

**Table 6: Site wise distribution of GIT malignancies**

Site	No. of cases	Percentage (%)
Esophagus	10	18.8
Stomach	4	7.5
Small Intestine	1	1.8
Large Intestine	13	24.5
Rectum	22	41.5
Anal Canal	3	5.6
Total	53	100

Colorectal cancers showed highest frequency (61.5%) amongst GI malignancies followed by cancer of esophagus (18.8%), stomach (7.5%) and anal canal (5.6%). Of all colorectal cancers, there were 47.1% cancer of rectum and anal canal and remaining 24.5% of colon cancer.

**Table 7: Age wise distribution of GIT malignancies**

Age (Yrs)	Esophagus	Stomach	Small Intestine	Large Intestine	Rectum	Anal Canal	Total
1-10	0	0	0	1	0	0	0
10-20	0	0	0	0	0	0	0
20-30	0	0	0	0	1	0	1
30-40	0	1	0	2	5	1	9
40-50	1	0	1	2	5	0	9
50-60	5	2	0	6	4	1	18
60-70	3	1	0	2	4	0	10
70-80	1	0	0	0	2	0	3
90-100	0	0	0	0	0	1	1
100-110	0	0	0	0	1	0	1
Total	10	4	1	13	22	3	53

Amongst the total of 53 cases of gastrointestinal malignancies, more than half of all cases were seen in 40-60 years of age with highest frequency within 50-60 years of age (34.61%). The youngest case was 29 years old and oldest case was 104 years with a mean age of 58.70 years. Cancer of oesophagus, stomach, colon, rectum and anal canal also peaked in the 51-60 years age group.

**Table 8: Sex wise distribution of GIT malignancies**

Site	Sex		Total-53
	Male	Female	
Esophagus	8	2	10
Stomach	2	2	4
Small Intestine	1	0	1
Large Intestine	10	3	13
Rectum	12	10	22
Anal Canal	1	2	3

The study which included 53 patients, showed a male preponderance for all sites in the gastrointestinal tract with 34 (64.0%) male patients and 19 (36.0%) female patients. The male female ratio was 1.7:1.

**Table 9: Relationship of habits with GIT tumours**

Site	Betel Nut		Smoking		Alcohol	
	Male	Female	Male	Female	Male	Female
Esophagus	1	2	7	0	4	0
Stomach	1	2	1	0	1	0
Small Intestine	0	0	1	0	1	0
Large Intestine	4	1	5	0	5	0
Rectum, Anal Canal	5	4	8	0	6	0

It has been observed in present study that the habits of betel nut, smoking and alcohol were predominantly more in males (96%) as compared to females (17%).

### Cancer of Esophagus

In the present study, cancer of esophagus (10 cases) most commonly involved middle third (60.0%) followed by lower third (30.0%) and upper third (10.0%) of cases respectively. In gross features of cancer of esophagus, infiltrating type(40%) was commonest followed by fungating(30%), ulcerative(20%) and polypoid (10%).

Squamous cell carcinoma was commonest microscopic type and accounted for 90.0% of all cases. Other type was adenocarcinoma carcinoma accounting for 10% cases. Moderately differentiated (40%) squamous cell carcinoma was commonest type of squamous cell carcinoma. In the present study dysphasia (80%) was the commonest presenting symptom observed in esophageal cancer cases followed by regurgitation, retrosternal pain, weight loss, hematemesis and vomiting was seen as the least common symptom.

Present study showed M: F ratio well corresponding to studies by Borges E.J.<sup>6</sup> Peak incidence of esophageal cancer was seen in 40-60 years age group in studies carried out by Borges E.J.<sup>6</sup>, Mohankumar and Ramachandran<sup>7</sup> and Verma et al<sup>8</sup>. Carcinoma of the esophagus generally is considered an extremely aggressive tumour with poor prognosis.<sup>9</sup> We observed highest number of cases (75.0%) in the middle third are well comparable to Verma et al<sup>8</sup> i.e.60%. In the present study, out of 10 cases, 90.0% were squamous cell carcinoma. The results of our study were comparable with Borges E.J.<sup>6</sup> and Roohullah et al<sup>10</sup> studies. Dysphagia was the commonest presenting symptom, causing the patients to seek medical attention and was seen in 80.0% cases in the present study. It was also the commonest presenting symptom in studies by Mohankumar and Ramachandran<sup>7</sup> and Gadour and Ayoola<sup>11</sup>.

### Cancer of Stomach

In the present study out of 4 case, pylorus(50%) was most commonly affected site in stomach cancer followed by body and cardia/fundus (25% each)and whole stomach was least commonly involved.

Infiltrating type of gastric carcinoma was the most commonly observed (50%) gross type in present study.

Fungating and ulcerative was the second most common finding. Tubular adenocarcinoma was the commonest microscopic type accounting for 50% of all gastric cancer followed by mucinous and signet ring cell carcinoma. Most common presenting symptoms of patients were dyspepsia, vomiting, epigastric pain, weight loss and dysphagia.

Male to female ratio was 3:1 showing male preponderance amongst stomach cancer cases in the present study, Sex ratio observed in our study was comparable with studies of Paymaster & SanghavLD et al<sup>12</sup>, Paymaster & Potdar et al<sup>13</sup> and Sharma O.P.<sup>14</sup> Peak incidence of stomach cancer was seen in 51-60 years age group in the present study. It was comparable with that reported in the studies carried by Paymaster & Sanghavi et al<sup>12</sup>, Paymaster & Potdar et al<sup>13</sup> and Sharma O.P.<sup>14</sup> and Abdulkareem et al<sup>15</sup>.

It was seen that pylorus of the stomach was the seat of disease in a majority of cases in most of the studies. Whole stomach was the least common affected site. Site wise distribution of cancer of stomach observed in the present study was in accordance with studies carried out by Paymaster & Sanghavi et al<sup>12</sup>, Sharma O.P.<sup>14</sup> and Sivanagamani et al<sup>16</sup>.

Sivanagamani et al<sup>16</sup> and Grabiec and Owen<sup>17</sup> reported ulcerative type as commonest on gross examination. Infiltrating type of lesion was commonest on gross in the present study and accounts for 50.0% of all cases. Adenocarcinomas was commonest microscopic type observed in studies by Paymaster & Potdar et al<sup>13</sup> in 68% cases. Sharma O.P.<sup>14</sup> in 47.6% cases, Sivanagamani et al<sup>16</sup> in 81.9% cases, Marjani et al<sup>18</sup> in 78.6% cases, Komolafe et al<sup>19</sup> in 75.7% cases. Frequency of adenocarcinoma in stomach showed that tubular adenocarcinoma was commonest type observed in 50.0% cases in Grabiec and Owen<sup>17</sup> study and 35.3% cases in Komolafe et al<sup>19</sup> study.

In the present study, adenocarcinoma accounted for 50.0% of cases of cancer of stomach. 25.0% cases of mucinous adenocarcinoma and 25.0% cases of signet ring cell carcinoma. Relative frequency of mucinous adenocarcinoma in present study was comparable with the studies carried out by Grabiec and Owen<sup>17</sup> and Komolafe et al<sup>19</sup>. Signet ring cell carcinoma was seen in 25.0% cases in the present study, which was comparable with study of Grabiec and Owen<sup>17</sup>.

Epigastric pain (75%) was the commonest clinical presentation seen in gastric cancer. It was observed in 60.3% patients in Paymaster & Potdar et al<sup>13</sup>, 66.7% in Sharma O.P.<sup>14</sup> and 74.3% in Sivanagamani et al<sup>16</sup> study.

### Cancer of small intestine

The number of cases of small intestine malignancies in present study was too small (only one case) to draw any conclusion except that malignant lesions of the small intestine were rare in occurrence.

### Cancer of colon, rectum and anal canal

Left sided malignancies(32) had higher frequency than right sided malignancy in the present study (38 cases). There were 58.82% cases in left colon and 41.18 % cases in right colon in Ahmad et al<sup>20</sup> series. Alijabreen A.M.<sup>21</sup> observed 76% of all colorectal tumours in left hemicolon. Present study also showed higher frequency in left hemicolon, which matches with the study by Alijabreen A.M.<sup>21</sup>.

Cancer of rectum (57.8%) was commonest amongst all colorectal cancer, followed by caecum, transverse colon and anal canal (7.8% each), ascending colon(5.2%) and rest descending colon, sigmoid colon, rectosigmoid, splenic and hepatic flexure(2.6% each) are rare. Of all colorectal cancer, cancer of rectum showed highest frequency i.e. 57.8% in the present study, which is in accordance with the studies of Meher Homji and Gangadharan<sup>22</sup> and Boytchev et al<sup>23</sup>.

In the present study, exophytic carcinomas were the commonest type seen in 63.0% cases, followed by endophytic 26.3%, annular 5.2% and polypoid 5.2% cases. Frequency of exophytic and endophytic growths matches approximately well with study of Ahmad et al<sup>20</sup>.

Histologically, adenocarcinoma [Fig. 1c] constituted most of colorectal cancer (78.7%) in the present study. Amongst all, tubular adenocarcinoma was commonest type (57.8%) observed in the present study followed by mucinous adenocarcinoma(15.7%)[Fig. 1d], basaloid squamous cell carcinoma(10.5%) [Fig. 1f], carcinoid (5%)[Fig. 1e] and other rare types as papillary, signet ring adenocarcinoma, melanoma, undifferentiated carcinoma(2.6%).

Commonest histopathological type observed amongst all colorectal cancer was adenocarcinoma in various series. Relative frequency of microscopic types was observed in the present study was in accordance with that observed in Meher Homji and Gangadharan<sup>22</sup> study except for lower portion of squamous cell carcinomas observed in anal canal and its incidence matches approximately well with the Falterman et al<sup>24</sup> and Mansoor et al<sup>25</sup> studies.

Common presenting signs and symptoms of cancer of colon include pain in abdomen and altered bowel habits. Bloody diarrhoea was commonly seen in right

sided lesions and obstructive manifestations occurred more commonly in left sided lesions. Lump in abdomen was common finding in growth involving caecum. Bleeding either in the form of visible or occult blood was less commonly seen finding. Presenting signs and symptoms observed in cases of present study correspond well with Falterman et al<sup>24</sup> study.

In the present study, there were 7 cases (0.87%) of benign tumor of gastrointestinal tract and 12 cases of miscellaneous lesion (haemorrhoids). Out of 7 cases 4 cases were of juvenile polyp, 2 cases of adenomatous polyp and 1 case of gastrointestinal stromal tumour. Out of total 53 malignant lesions of gastrointestinal tract, lymph node secondaries were seen in 1 case of stomach cancer (1.9%) and 2 cases of colonic cancer(3.7%).

Male preponderance was observed in the colorectal cancer patients in the present study. Kulkarni et al<sup>26</sup> and Xu An- gao et al<sup>27</sup> also showed almost similar sex distribution among colorectal cancer cases.

Age group in which peak incidence was observed in present study i.e. 51-60 years was comparable with Mc Swain et al<sup>28</sup>, Paymaster & Sanghavi et al<sup>12</sup> and Meher Homji et al<sup>22</sup> series.

In Ahmad et al<sup>20</sup> study, 54.12% cases of colorectal cancer were fungating and 45.9% cases infiltrative. In the present study, exophytic carcinomas were the commonest type seen in 63.0% cases, followed by endophytic 26.3%, annular 5.2% and polypoid 5.2% cases. Frequency of exophytic and endophytic growths matches approximately well with study of Ahmad et al<sup>20</sup>.

### Discussion

A total of 800 cases of gastrointestinal tract lesions were studied over a period of two and half years from January 2011 to July 2013. Amongst 800 cases, there were 729 cases of inflammatory lesions and 59 cases of gastrointestinal tract tumours.

Amongst the inflammatory lesions, most common lesion was appendicitis (both acute and chronic) accounting for 88.4%.

**Table 10: Comparison of age group showing peak incidence of Appendicitis**

Sr. No.	Age group	Samsi AB et al <sup>29</sup>		Present study	
		No. of cases	Percentage (%)	No. of cases	Percentage (%)
1.	0-10	4	4.0	38	6.0
2.	11-20	14	14.0	192	30.0
3.	21-30	56	56.0	255	40.0
4.	31-40	18	18.0	93	14.0
5.	41 onwards	8	8.0	67	10.0
	Total	100	100	645	100

In the series of A.B. Samsi et al<sup>29</sup> also appendicular lesions were most common in the age group of 21-30 years concordance with our study.

**Table 11: Comparison of sex distribution of Appendicitis**

Sr. No.	Authors	Total No. of cases	Males	Females	M:F ratio
1.	John Berry et al <sup>30</sup>	246	148	60	2.47:1
2.	Crabbe et al <sup>31</sup>	205	140	65	2.15 :1
3.	A.B. Samsi et al <sup>29</sup>	100	66	34	1.94:1
4.	Present study	645	409	236	1.73:1

The male preponderance found in the present study is comparable with A.B. Samsi et al<sup>29</sup>

Cancer of the gastrointestinal tract has become a worldwide disease. The incidence of gastrointestinal tract malignancies varies from country to country and also in different parts of the same country. Rural population has less awareness and ignorance leads to late presentation.

A total of 59 cases of gastrointestinal tract tumours were studied amongst a total of 348 cases of malignant lesions of all sites. Of 59 cases of gastrointestinal tract tumours, 52 cases were of malignant neoplasms on histopathological examination, 7 cases of benign neoplasms and 12 were miscellaneous.

**Table 12: Comparison of relative frequency of GIT malignancies**

Author (Year)	Total malignant lesions (all sites)	GIT malignant lesions	Percentage (%)
Chitkara et al <sup>32</sup>	3410	-	07.5
Sabharwal et al <sup>33</sup>	1185	99	08.4
Prabhakar et al <sup>34</sup>	5611	331	05.9
Jussawalla et al <sup>35</sup>	736	-	27.0
Umap and Dhamne et al <sup>36</sup>	16165	1472	09.1
Kulkarni et al <sup>37</sup>	2826	388	13.7
Present study	348	53	15.2

Relative frequency of 14.94% of GIT malignancies in the present study compares well with the results of study conducted by Kulkarni et al<sup>37</sup>.

**Table 13: Comparison of sex distribution of GIT malignancies**

Author (Year)	GIT malignant Lesions	Male	Female	M:F
Malhotra S.L. <sup>38</sup>	470	363	107	3.4:1
Paymaster et al <sup>12</sup>	10354	7587	2767	2.7:1
Sabharwal et al <sup>33</sup>	99	52	47	1.1:1
Prabhakar et al <sup>34</sup>	331	201	130	1.5:1
Kulkarni et al <sup>37</sup>	388	262	126	2:1
Kamal et al <sup>39</sup>	114	60	54	1.1:1
Abdulkareem et al <sup>15</sup>	713	416	297	1.4:1
Present study	52	33	19	1.7:1

In the present study, GIT malignancies showed slight male preponderance. Sex ratio in the present study was similar to that seen in Prabhakar et al<sup>34</sup> and Abdulkareem et al<sup>15</sup> study.

Sex factor usually plays very important role in GIT malignancies which could be explained by changing life

styles, dietary habits, increased literacy rates, increasing awareness about health problems, earlier seeking of medical advice, availability of modern diagnostic facilities and increased life expectancy.

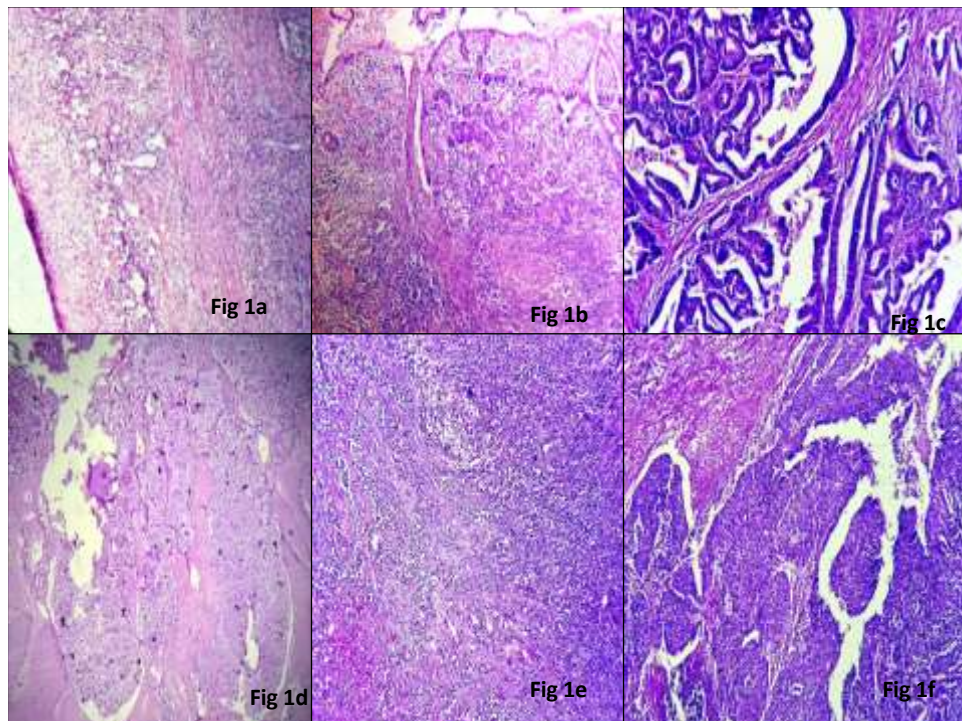
**Table 14: Comparison of organ wise distribution of GIT malignancies**

Author	Organ wise Distribution (%)			
	Oesophagus	Stomach	Small Intestine	Colon, Rectum and anal canal
Sabharwal et al <sup>33</sup>	25.3%	07.0%	0.5%	62.6%
Prabhakar et al <sup>34</sup>	31.4%	06.0%	00.03%	62.3%
Jussawalla et al <sup>35</sup>	39.2%	29.4%	-	31.5%
Umap and Dhamne <sup>36</sup>	55.9%	12.9%	00.7%	30.5%
Kulkarni et al <sup>37</sup>	27.3%	17.0%	02.6%	53.0%
Kamal et al <sup>39</sup>	14.9%	34.2%	6.1%	44.7%
Abdulkareem et al <sup>15</sup>	2.5%	12.0%	1.7%	56.0%
Present study	19.23%	7.6%	5.7%	67.30%

Paymaster et al<sup>12</sup> reported cancer of oesophagus as commonest among gastrointestinal malignancies. Colorectal cancer occurred with highest frequency in Sabharwal et al<sup>33</sup>, Prabhakar et al<sup>34</sup>, Kulkarni et al<sup>37</sup>, Kamal et al<sup>39</sup> and Abdulkareem et al<sup>15</sup> studies. In all studies small intestinal malignancies were least common. From organ wise distribution observed in the present study, it was seen that highest frequency was seen of colorectal cancer and least common was small intestinal malignancies.

Organ wise frequency of GIT malignancies in the present study was well in accordance with the studies carried out by Sabharwal et al<sup>33</sup> and Prabhakar et al<sup>34</sup>. Unlike what was seen in esophageal cancer, there was little evidence to support any association between alcohol and gastric cancer. It was seen that habitual associations were more common among male patients when compared to female patients.

It was seen that habitual associations were more common among male patients when compared to female patients.



**Fig. 1: Histopathology of various GIT lesions. a) Microphotograph showing acute appendicitis with PMNs in the muscular layer. (H&E,x400), b) Granulomatous intestine with caseation necrosis (H&E,x400), c) Well differentiated adenocarcinoma of colorectum (H&E,x400), d) Mucinous adenocarcinoma of colon(H&E,x400), e) Carcinoid tumor of intestine (H&E,x400), f) Basaloid squamous carcinoma of rectum (H&E,x400)**



## Summary

- Amongst 800 cases studied of GI lesions, there were 728 cases of inflammatory lesions and 53 were of gastrointestinal tract tumours.
- Acute appendicitis and chronic appendicitis were the most common inflammatory lesions comprising 645 cases (88.5%) with a peak incidence in the 20-30 years age group and M: F ratio 1.7:1.
- Malignant lesions of gastrointestinal tract constituted 88.3% while benign tumor constituted 11.6% only.
- Colorectal cancers were seen having highest frequency (61.5%) followed by oesophagus (18.8%), stomach (7.5%), small intestine (1.8%).
- Highest frequency of gastrointestinal tract malignancies was observed in the age group of 50-60 years with male preponderance (M: F ratio being 1.7:1)

## Conclusions

- Inflammatory lesions were accounted for 91.0% of gastrointestinal tract lesions. Appendicitis (88.5%) was the most common inflammatory lesion.
- In neoplastic lesions, malignant tumours (88.3%) outnumber the benign lesions (11.6%). In malignant lesions, colorectal cancer (61.5%) was the most common and in benign lesions, polyps were the commonest. The mean age of gastrointestinal malignancies was 50-60 years with male predominance.

In conclusion, our study of analysis of gastrointestinal tract lesions throws a light on the pattern of GI lesions seen in our institute and histopathology which is regarded as the most sensitive and specific diagnostic method for the early detection of GI tract cancer has played an important role in the diagnosis of gastrointestinal neoplasms and therefore had aid in their early management.

## Bibliography

1. Stewart BW, Kleihues P. World Health Organisation. World Cancer Report. Lyon: IARC Press, 2003.
2. Mohandas KM. Tumours of the gastrointestinal tract. In: Shaha S.N. API textbook of Medicine 8<sup>th</sup> ed. Mumbai: The Association of Physicians of India;2008:881.
3. Dr. Ananya Das. Gastrointestinal tract cancer: Prevention and early detection are the keys to cure. SPREAD, 2007.
4. Robins SL, Cotran RS: Pathological Basis of diseases, 8<sup>th</sup> edition, Elsevier publication;2004:780.
5. David W. Day et al: Morson and Dawson's gastrointestinal pathology 4<sup>th</sup> edition, Blackwell publication;2003:3.
6. Borges EJ. Resection for esophageal cancer. Indian J surg 1964;20:363-70.
7. Mohankumar K, Ramachandran P. Carcinoma oesophagus in North kerala Indian J Cancer 1973;10:183-7.
8. Verma P, Sinha BB, Zaman N. Carcinoma of the oesophagus: An epidemiologic study: Indian J Surg 1979;41:437-41.
9. Zinner MJ, Schwartz SI, Ellis H. Maingot's Abdominal Operation; 10th ed. Appleton and Lange: Connecticut: 1997.
10. Roohullah, Khursheed MA, Shah MA, Khan Z, Haider SW, Burdy Gm et al. An alarming occurrence of esophageal cancer in Balochistan. Pak J Med Res 2005;44(2):101-4.
11. Gadour MO, Ayoola EA. The frequency of upper gastrointestinal malignancy in Gizan. Saudi J Gastroenterol 2004;10(1):16-21.
12. Paymester JC, SanghviLD, Gangadharan P. Cancer in the gastrointestinal tract in Western India: Epidemiologic study. Cancer 1968;21(2):279-88.
13. Paymester JC, Potdar GG, DeSouza LJ, Gangadharan P. Cancer of the stomach. Indain J Cancer 1973;10:1-14.
14. Sharma OP. Study of gastric carcinoma. Indian J Cancer 1974;11:406-418.
15. Abdulkareem FB, Faduyile FA, Daramola AO, Rotimi O, Banjo A, Elesha S et al. Malignant Gastrointestinal Tumours in South Western Nigeria: A Histopathologic Analysis of 713 Cases. West African j of Medicine 2009;28(3):173-176.
16. Sivangamani k, Reddy DB, Raju GC. Carcinoma of stomach- A study of 200 cases. Indian J Cancer 1974;11:437-43.
17. Grabiec J, Owen DA. Carcinoma of the stomach in young persons. Cancer 1985;56:388-96.
18. Marjani A, Kabir MJ, Semnani S. Stomach cancer incidence among males in Golestan Province, Iran. Indian J Gastroenterol 2007;26:299.
19. Komolafe AO, Ojo OS, Olasode BJ. Gastric malignancies and associated pre-malignant lesions in a teaching hospital in South West Nigeria. Afr J Biotechnol 2008;7(13):2104-2111.
20. Ahmad Z, Idrees R, Ahmed R, Kayani N, Pervez S, Hasan SH. Colorectal carcinoma, extent and spread in our population. Resection specimens give valuable information. J Pak Med Assoc 2005;55(11):483-5.
21. Aljebreen AM. Clinicopathologic patterns of colorectal cancer in Saudi Arabia: Younger with an advanced stage presentation Saudi j Gastroenterol 2007;13(2):84-7.
22. Meher Homji DR, Gangadharan P. Malignant neoplasms of the lower alimentary tract. J Indian Med Assoc 1972;59:271-5.
23. Boytchev H, Marcovic S, Oettle GJ. The characteristic of large bowel cancer in the low risk black population of the Witwatersrand JB Coll Surg Edinb 1999;44(6):366-70.
24. Falterman KW, Hill CB, Markey JC, Fox JW, Cohn I. Cancer of the colon, rectum and anus: A review of 2,313 cases. Cancer 1974;34:951-9
25. Mansoor I, Zahrani IH, Aziz SA. Colorectal cancers in Saudi Arabia. Saudi Med J 2002;23(3):322-327.
26. Kulkarni PV, Jaiswal SS, Rathod SB, Khalique A, Kulkarni RR. Profile of malignancies at Medical College, Ambajogai-(15 years retrospective study). Indian J Cancer 1996;33(1):31-6.
27. XU An -gao, JIANG Bo, ZHONG Xu- Hui, LIU Ji-hong. Clinical epidemiological characteristics of 3870 cases of colorectal cancers in Guangdong region. Chin J Int Med 2006;45:9-12.
28. Mc Swain B, Sadler RN, Main FB. Carcinoma of the colon, rectum and anus. Ann Surg 1962;155 (5):782-794.
29. Aird ian, "A Companion in Surgical studies", 2<sup>nd</sup> edition 1958. E and S Livingstone Ltd; Edinburgh and London (quoted by A.B. Samsi et al, 1969).
30. Berry John and Ronald Malt: Appendicitis Near its Centenary: Ann Surgery;1984; Vol. 200, No.5,567-575.
31. Crabbe Mark et al: Recurrent and Chronic appendicitis:

- Surgery, Gynaecology and Obstetrics; Vol. 163;11-13,1986.
32. Chitkara NL, Chugh TD, Arya RK. Cancer in Punjab. *Indian J Cancer* 1966;3:94-105.
  33. Sabharwal BD, Prabhakar H, Prabhakar BR. Gastrointestinal malignancies in Ludhiana. *J Indian Med Asso* 1975;64(3):75-60.
  34. Prabhakar BR, Prabhakar H, Tung BS, Sood A. Gastrointestinal malignant tumours in Amritsar(Punjab). *Indian J Surg* 1981;43:343-6.
  35. Jussawalla DJ, Sathe PV, Yeole BB, Natekar MV. Cancer incidence in Aurangabad city 1978-80. *Indian J Cancer* 1984;21:55-62.
  36. Umap PS, Dhamne BK. Malignant Gastrointestinal tract tumours in Central India. *Indian Medical Gazette* 1995;CXXIX:47-51.
  37. Kulkarni PV, Jaiswal SS, Rathod SB, Khalique A, Kulkarni RR. Profile of malignancies at Medical College, Ambajogai-(15 years retrospective study). *Indian J Cancer* 1996;33(1):31-6.
  38. Malhotra SL. Geographic distribution of gastrointestinal cancers in India with special reference to causation. *Gut* 1967;8;361-372.
  39. Kamal F, hamid S, Tahir TM, Haider S, Aziz F, Tahir Z et al . Profile of malignant tumours of Gastrointestinal Tract at Jinnah Hospital, Lahore, *Ann King Edward Med Coll* 2001;7(3):235-7.