

## ORIGINAL ARTICLE

**A Histopathological Spectrum of Gastrointestinal Tract Lesions in a Tertiary Care Centre in South Western Part of India: An Epidemiological Study**

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**Abstract:**

*Background:* Diseases of Gastro-intestinal Tract (GIT) are more common than any other systems in human body. Adenocarcinomas are more common in intestine. *Aim and Objectives:* To study the age, sex, and site wise distribution of various types of benign and malignant GI lesions. *Material and Methods:* The prospective study of 159 patients having gastrointestinal lesion were included in this study over a period of one year from October 2016 to September 2017. The materials were collected in the form of biopsy and resected specimens of gastrointestinal tract with relevant clinical history and sent in 10% Formalin and processed in automatic tissue processor. Routine Hematoxylin and Eosin stain and special stains were done wherever needed. *Results:* Out of total 5000 specimens 159 cases (3.18%) were GIT lesions, both benign and malignant. Appendicitis was the most common benign lesion comprising of 52.14% of cases. Adenocarcinoma being the most common type of gastrointestinal tract malignancy (48.57%). The second most common malignancy was squamous cell carcinoma (37.14%). Most common lesion of the oesophagus was squamous cell carcinoma whereas adenocarcinomas were the most common lesion of stomach and large intestine followed. *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.

**Keywords:** Adenocarcinoma, Squamous Cell Carcinoma, Gastrointestinal

**Introduction:**

Gastrointestinal biopsies constitute a large chunk of specimens received in the Department of histopathology in any tertiary care hospital. The specimens comprise of endoscopic biopsies from gastric and duodenal mucosa, colonoscopic biopsies, partial and hemi-colectomies, appendicectomies and laparotomy [1]. The objective of our study was to identify the different histopathological lesions in these specimens prevalent in the south-western part of Punjab. Gastrointestinal tract malignancies are among the top ten leading sites for malignancies worldwide [2]. Cancer is the biggest health problem worldwide that amounts to 20% of all estimated new cases and 15% of estimated cancer related deaths worldwide [3, 4].

Esophageal malignancies are the eighth most common malignancy worldwide and sixth most common of cancer related death. Esophageal malignancy accounts for 5.5% of all the malignant gastrointestinal tracts tumours with squamous cell carcinoma being the most common histopathological diagnosis, showing strong gender predilection towards males [5, 6].

**Material and Methods:**

This prospective study was conducted in the Department of Pathology, Central Laboratory of

Adesh Institute of Medical Sciences (AIMSR) over a period of one year from 1<sup>st</sup> September 2016 to 31<sup>st</sup> August 2017. Biopsy and resected specimens from gastrointestinal tract namely stomach, small intestine, colon, appendix, rectum and anal canal were included in the study. The relevant clinical history and investigations were taken from the patients files. The biopsy with artefacts and inadequate material were excluded from the study. The specimens were received in the Dept. of Histopathology in 10 % formalin solution. After proper processing the Haematoxylin and Eosin (H and E) stained slides were reported. Special stains like Giemsa, Periodic Acid Schiff (PAS) were also done whenever necessary. Clinicopathological profile of patients like age and gender were also studied along with histopathological correlation.

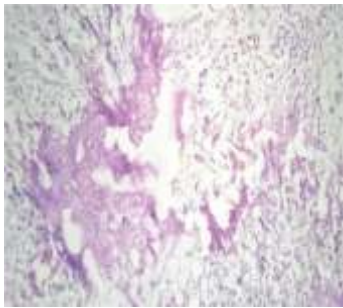
### Results:

A total of 5000 specimens received in the Department of Pathology, AIMSR, 159 cases (3.18%) were gastrointestinal tract specimens, both benign as well as malignant. Among the 159 GIT specimens, a majority were benign comprising of 124 cases (77.9%) and malignancies a mere 35 cases (22.01%) with male to female ratio of 1.12:1. The male to female ratio was 1.33:1 in malignant cases whereas the ratio is 1.06:1 in benign cases. Our study showed that the 5<sup>th</sup> to 7<sup>th</sup> decade was the most predominantly affected age group contributing to 68.57% of all malignant cases whereas the benign lesions were mostly seen in the 3<sup>rd</sup> to 4<sup>th</sup> decade.

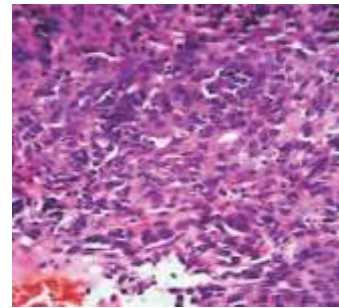
Colorectal and anal canal were the most common site of malignancy comprising of 16 cases (45.71%) followed by esophagus comprising of

13 cases (37.14%) followed by colorectal region constituting 10 cases (28.57%). Small intestine contributed 6 cases (17.14%) with 4 cases (11.4%) in duodenum, and 1 case each in ileum and jejunum.

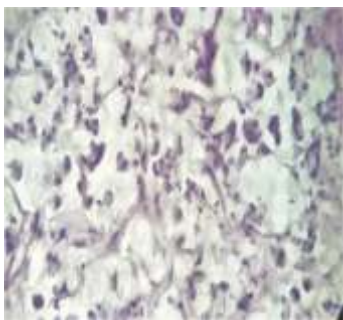
Out of 35 cases of malignant gastrointestinal tract lesions adenocarcinoma (Fig. 1, 2 and 3) was the most common histopathological diagnosis comprising of 17 cases (48.57%) followed by Squamous cell carcinoma (Fig. 4 and 5) which contributes to 13 cases (37.14%). Lymphoid neoplasm and metastasis comprised of 2 cases (5.71%) each. Among the benign lesions, appendix was the most common site comprising of 52.41% of all benign cases followed by colon (41.93%), gastric (2.41%). Among the lesions of appendix, acute appendicitis was the most common histopathological diagnosis contributing to 39 cases (31.45%) of all benign cases followed by 23 cases of resolving appendicitis (18.54%) and 3 cases gangrenous appendicitis (2.41%). Colon was the second most common site for benign gastrointestinal lesions comprising of 41.93% of all benign cases with non-specific colitis contributing to 11 cases (8.87%), followed closely by 8 cases of inflammatory bowel disease (6.45%), 4 cases (3.22%) of Meckel's diverticulum, 3 cases (2.41%) of gangrenous bowel and 1 case (0.80%) each of Hirschsprung's disease and Mesenteric cyst. 13 cases (10.48%) of miscellaneous cases were also diagnosed. Gastric lesions comprised of 3 cases (2.41%) with 2 cases (1.6%) of gastric polyp. There was 1 case each of pseudopancreatic cyst, celiac disease and fat necrosis each contributing 0.8% of all cases.



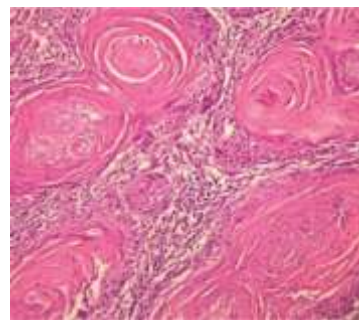
**Fig.1: H and E (10X): Showing Mucinous Adenocarcinoma with Extracellular Mucin**



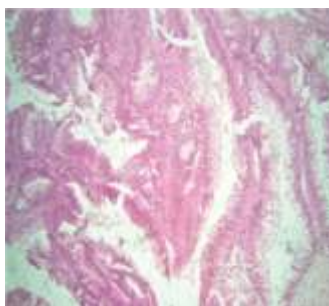
**Fig.4: H and E (40X): Showing Well Formed Keratin Pearls in a Well Differentiated Squamous Cell Carcinoma**



**Fig.2: H and E (40X): Showing Mucinous Adenocarcinoma**



**Fig.5: H and E (40X): Showing Poorly Differentiated Squamous Cell Carcinoma**



**Fig.3: H and E (40X): Showing Papillary Adenocarcinoma**

#### **Discussion:**

Among the total of 5000 specimens received in our hospital during one year period, 3.18% were gastrointestinal tract lesions. Of the 13 cases of esophageal malignant tumours, all cases (100%) were of squamous cell carcinoma. Esophagus contributed to 13 cases (37.14%) of all malignant cases which were in concordance to the studies conducted by Prabhakar *et al.* [8] and Jussawalla *et al.* [9]. The most common age group was 5<sup>th</sup> to 7<sup>th</sup> decade which was similar to the study conducted by Crawford [7] who also found the common age group to be more than 50 years.

Other studies conducted by Mohankumar *et al.* [10], Borges *et al.* [11] also showed similar results. Moderately differentiated constituted 53.8%, followed by poorly differentiated 30.76%, and well differentiated only 15.4% of all cases. Squamous cell carcinomas were most commonly located in the middle or lower third of the esophagus and clinically presented with progressive dysphagia, weight loss, anemia.

After esophagus colorectal region including anal canal and rectum was the 2<sup>nd</sup> most common site for gastrointestinal malignancies contributing 16 cases (45.71%) of all malignancies which was in concordance to the study conducted by Kulkarni *et al.* [12] and Kamal *et al.* [13]. Small intestine contributed to 6 cases (17.14%) of all malignancy which was higher than the studies conducted by Kamal *et al.* [13] and Thakur *et al.* [14]. Stomach consisted of only 2 cases (5.7%) of all malignancies which was in concordance with the studies conducted by Thakur *et al.* [14], Prabhakar *et al.* [8] and Sabharwal *et al.* [15]. Out of the 159 cases of GIT biopsies studied over a period of one year, 124 cases were benign consisting of 77.9% of cases with appendix contributing to maximum no. of cases (65 cases -52.41%) in the 2<sup>nd</sup> to 4<sup>th</sup> decade

which was similar to the study by Samsi *et al.* [16]. Our study also showed appendicitis to be the most common inflammatory condition amongst all benign conditions.

Our study showed that 5<sup>th</sup> to 7<sup>th</sup> decade was the most predominantly affected age group contributing to 68.57% of all malignant cases whereas, the benign lesions were mostly seen in the 3<sup>rd</sup> to 4<sup>th</sup> decade which was similar to the finding of the study conducted by Thakur *et al.* [12]. All the comparisons are being summated in Table 1.

### Conclusion:

Acute appendicitis was being the most common benign lesion. Colorectal and anal canal were the most common site of malignant lesions. Adenocarcinoma was the most common histopathological diagnosis followed by squamous cell carcinoma. Histopathological diagnosis has been the gold standard for early accurate diagnosis and is indispensable for the specific treatment protocols. It aids in the clinical grading and staging of the malignant lesions. Our study summarizes the wide variety of gastrointestinal tract lesions in the Malwa region.

**Table 1: Comparison of Organ Wise Distribution of GIT Malignancies**

Study	Esophagus	Stomach	Small intestine	Colon, rectum and anal canal
Prabhakar <i>et al.</i> [8]	<b>31.4%</b>	<b>6%</b>	0.03%	62.3%
Jussawalla <i>et al.</i> [9]	<b>39.2%</b>	29.4%	-	31.5%
Sabharwal <i>et al.</i> [15]	25.3%	<b>7%</b>	0.5%	62.6%
Thakur <i>et al.</i> [14]	19.23%	<b>7.6%</b>	<b>5.7%</b>	67.3%
Kamal <i>et al.</i> [13]	14.9%	34.2%	<b>6.1%</b>	<b>44.7%</b>
Kulkarni <i>et al.</i> [12]	27.3%	17%	2.6%	<b>53.0%</b>
<b>Our study</b>	<b>37.14%</b>	<b>5.7%</b>	<b>17.14%</b>	<b>45.71%</b>

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