

## Histopathological Spectrum of Lesions in Gastrointestinal Endoscopic Biopsies: A Retrospective Study in a Tertiary Care Center in India

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### Abstract

**Introduction:** Lesions of Gastrointestinal tract (GIT) are commonly seen in the surgical department patients. These patients are subjected to endoscopic examination and biopsy is taken for further evaluation. Both upper and lower parts of gastrointestinal tract can be accessed through endoscopy. A wide spectrum of lesions occurs in the whole of GIT. This study is done to statistically analyse the various histopathological lesions and to evaluate the usefulness of endoscopic biopsy to the clinicians for effective management.

**Study design:** A total of 180 cases received in the histopathology lab were analysed.

**Materials and methods:** All endoscopic biopsies from upper and lower GIT were received and processed. Paraffin blocks were made and sections were cut at 4 micron thickness and stained with routine Hematoxylin and Eosin stain.

**Results:** Out of total 180 endoscopic biopsies, the most commonly encountered were gastric biopsies, accounting to 103 cases, followed by colon-rectum (40), esophagus, duodenum and ileum. Malignancy was the most common lesion in the esophagus, chronic non-specific gastritis was the most common lesion in stomach. Among the malignant cases, esophagus was found to be the most common site, followed next by stomach.

**Conclusion:** Hence in this study, various non-neoplastic and neoplastic lesions were found in the whole of GIT. This study is done to emphasize the usefulness of endoscopic biopsy in diagnosing the conditions, thus helping the surgeons to decide further management prior to resection, especially in malignant cases.

**Keywords:** Gastro-intestinal lesions, endoscopy, malignancy, non-neoplastic lesions.

### Introduction

Disorders of gastrointestinal tract (GIT) are the most commonly encountered problems in clinical practice. They cause a high degree of morbidity

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and mortality [1]. The invention of flexible fibre optic endoscopy had a major breakthrough among surgeons. Since then an endoscopy or colonoscopy has become incomplete without biopsy for histopathological examination [2]. Upper gastrointestinal endoscopic biopsies include biopsies from oesophagus, stomach and duodenum upto the second part. Lower gastrointestinal biopsies are taken from lower GIT beyond second part of duodenum.

Various lesions can occur in GIT and include non-neoplastic conditions, more commonly

encountered are infection, inflammation, toxic and physical injury, vascular disorders etc. Polyps are also seen in GIT which include hyperplastic, inflammatory, adenomatous and carcinomatous polyps [3]. Endoscopic biopsies enable the surge onto reach the inaccessible sites of lesions and arrive at a diagnosis without major surgical resection.

Endoscopic biopsies, apart from diagnostic utility, they are also used to monitor the course of the disease, extent of the disease, to detect complications and to assess the response to therapy. Hence, they are considered gold standard investigation for GI lesions [4]

### Materials and Methods

This is a retrospective study, carried out in Karpagam Faculty Of Medical Science and Research, Coimbatore, India during a period of one year from January 2018 to December 2018. A total of 180 cases (Upper & Lower gastrointestinal biopsies) were received in the histopathology laboratory.

Complete clinical history was collected for histopathological correlation.

### Inclusion Criteria

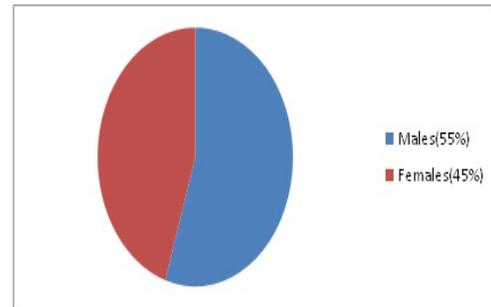
1. All lesions of upper and lower GIT
2. All age groups and both sexes

### Exclusion Criteria

1. Resection specimens
2. Lesion of mouth and pharynx
3. Lesion of liver and gall bladder

The biopsies were received as tiny tissue fragments. They were placed in filter paper and inked with eosin stain. Fixation was done in 10% formalin, followed by tissue processing and embedding. Five micron thick section were taken and stained with Hematoxylin and Eosin. Analysis of spectrum of lesion in GIT was done. All tumours were classified according to the WHO classification [5].

## Results



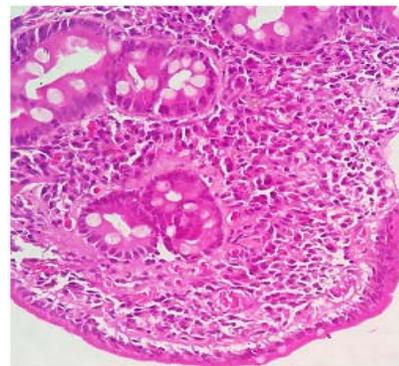
**Figure 1 Sex distribution of received endoscopic biopsy cases.**

In the present study, out of 180 cases, 99 (55%) were males and 81 (45%) were females with male to female ratio of 1.2:1 (Figure 1). The mean age of presentation was 41 years. The youngest patient was 12 year male with chronic non-specific colitis and the oldest patient was 38 year male with adenocarcinoma of rectum.

Among all endoscopic biopsies, gastric biopsies constituted higher number of 103 (57%), followed by colon (23%), oesophagus (16%) and small bowel (4%).

Out of 30 cases of esophageal biopsies, 10 cases were non-neoplastic and 20 cases were neoplastic in nature (Figure 2). Table 1 shows distribution of lesions in esophagus.

Out of 103 cases of gastric biopsies, the most common lesion was found to be chronic non specific gastritis (61%), followed by *H. pylori*,



**Figure 2 *H. pylori* gastritis showing plenty of plasma cells in lamina propria. H&E(40X)**

**Table 1: Distribution of lesions in esophagus(n=30)**

DIAGNOSIS	PERCENTAGE
Squamous cell carcinoma	53
Dysplastic squamous epithelium	10
Candidiasis	8
Squamous cell hyperplasia	13
Hyperplastic polyp	3
Chronic non-specific esophagitis	13

dysplasia& malignancy (Table 2), (Figure 3). Figure 4, shows poorly differentiated adenocarcinoma with sheets of signet rig cells.

**Table 2: Distribution of pathology in stomach(n=103)**

DIAGNOSIS	PERCENTAGE
Chronic non-specific gastritis	62
H.Pylori gastritis	22
Hyperplastic polyp	3
Adenocarcinoma	11
Acute gastritis	1
Adenoma	1

Among 5 cases of duodenal biopsies received, 3 cases were chronic non specific duodenitis, 1 was hyperplastic polyps, one case was moderately differentiated adenocarcinoma (Figure 5) and one was reported as tropical sprue.

Forty two cases were biopsies from ileal and colonic regions including anal canal and rectum. The most common lesion was chronic non specific colitis (50%) (Figure 4). Two cases of ileal biopsies were received out of which one was reported as tuberculous lesion. Figure 6 shows adenomatous polyp with high grade dysplasia and Figure 7 shows moderately differentiated adenocarcinoma of colon.

Table 3 shows distribution of lesions in colorectal region. In this study, out of total 180 cases of

**Table 3: Distribution of lesions in colorectal region(n=40)**

LESIONS IN COLORECTAL REGION	PERCENTAGE
Adenocarcinoma-well differentiated	10
Adenocarcinoma-moderately differentiated	24
Adenocarcinoma-poorly differentiated	5
Adenoma with Dysplasia-low grade	3
Adenoma with Dysplasia-high grade	3
Hyperplastic polyp	3
Tuberculosis	2
Chronic nonspecific colitis	50

gastrointestinal biopsy, 37 cases were malignant and their distribution is shown in Table 4.

**Table 4: showing distribution of malignancies in gastrointestinal endoscopic biopsies**

SITE OF MALIGNANCY	PERCENTAGE
Esophagus	43%
Stomach	29%
Duodenum	0
Ileum and jejunum	0
Colorectum and anal canal	28%

## Discussion

Gastrointestinal lesions are one of the most common problems routinely seen in clinical practice. They are broadly classified into upper gastrointestinal disorders and lower gastrointestinal disorders.

In this present study, the most common biopsies received are gastric biopsies, which constituted 57% of total 180 gastrointestinal biopsies. This is similar to a study by Krishnappa Rashmi [6] and Prasaad PR [7], who also observed that the most common biopsies received were gastric biopsy, accounting for 68% and 56%.of the total gastrointestinal biopsy. Bilal A sheikh *et al* in their study also showed majority of cases constituted by gastric biopsy (64.8%) [9].

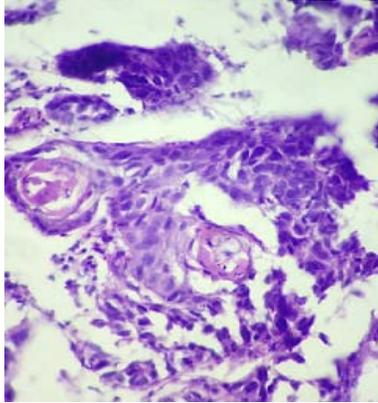


Figure 3 Microscopy showing nests of malignant squamous cells with keratinization and nuclear pleomorphism. H&E(40X)

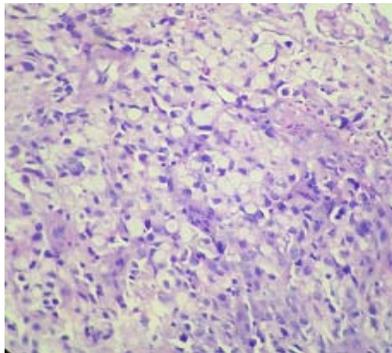


Figure 4 Gastric biopsy with sheets of signet ring cells showing cytoplasmic mucin and eccentrically placed nucleus. H&E(40X)

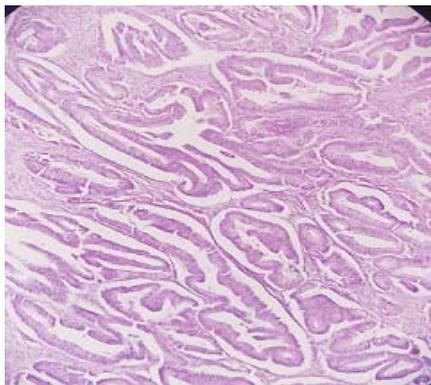


Figure 5 Moderately differentiated adenocarcinoma of duodenum with malignant glands. H&E(40X)

### Gastric Lesions

Of the total 103 biopsies from stomach, 91 were non neoplastic and 12 were neoplastic. The most common lesion in gastric biopsy in this study was chronic gastritis, which is similar to the study done by Hirachand *et al* and SK Md Jaynut Islam *et al.* [10].

Twelve cases were malignant of which moderately differentiated adenocarcinoma was the most common which is similar to other studies by Hirachand [1] and Sharma P [8]. In contrast, Bilal A sheikh *et al* in his study, observed that poorly differentiated adenocarcinoma was more common than moderately differentiated adenocarcinoma [9].

*H. pylori* is the most common cause of chronic gastritis. It manifests as multifocal atrophic gastritis in which there is patchy involvement of pylorus, body and cardiac mucosa. In a study by Ponnam Sharma *et al*, it was observed that *H.pylori* was positive in 47% of cases and need in 53% of cases [8]. In study by Prasad PR, 61 % of cases showed *H.pylori* and 39% were *H.pylori* negative [7].

In the present study, among 103 cases of gastric biopsies, *H.pylori* was positive in 23 cases (22%) which is found lower than other studies

### Esophageal Lesions

Among the esophageal biopsies received in the present study (30cases) 10 were non-neoplastic and 16 were malignancies. This data is similar to other studies by SK Md Jaynut Islam [10] and Bilal A Sheikh. Among the neoplasms, squamous cell carcinoma was the most common constituting 53% of esophageal biopsies.

### Duodenal Lesions

In the present study, only 5 duodenal biopsies were received, out of which 3 showed chronic non specific duodenitis. No malignancy was reported in the study which is similar to a study by Kazi JI [11].

### Colonic Lesions

Among the lower gastrointestinal biopsies, colonic biopsies were the most common. 40 colon biopsies were received. Various lesions can occur in colon including chronic non specific colitis, focal active colitis and ischemic colitis. Special forms include collagenous colitis; lymphocytic colitis and eosinophilic colitis .Polyps are more commonly seen in colon. Tubular adenomas, villous adenomas and hyperplastic polyps are the frequently encountered polyps. The most common lesion in the colonic biopsies in present study was chronic non specific colitis (50%).

Adenomatous polyps were reported with either lower grade dysplasia or high grade dysplasia. One case of villous adenoma with high grade dysplasia and single cell tumour infiltration into the lamina propria was reported.

Among the malignancies of colon, moderately differentiated adenocarcinoma was the most common constituting 80% of colonic malignancies, which is similar to the study by Durrani A [12].

Of all these lesions of GIT, the most important to be diagnosed are malignancies. In the present study, 37 cases were reported as malignant and the most common site was found to be esophagus which is in contrast to study by Pailoor K [13].

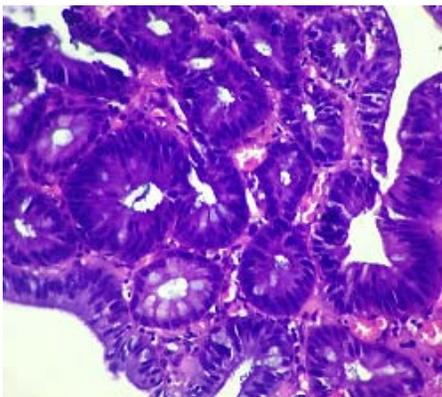


Figure 6 Microscopy showing adenomatous polyp with high grade dysplasia.H&E(40X)

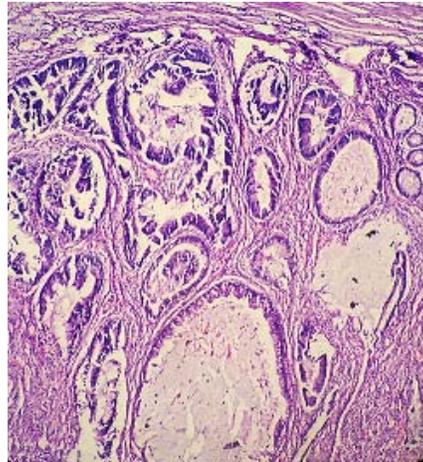


Figure 7 Colonic biopsy showing malignant glands lined by pleomorphic nuclei.H&E(40X)

Endoscopy and biopsy have certain advantages and limitations. Advantages: It is a minimally invasive procedure. It is sensitive for diagnosing mucosal diseases. Limitations: It cannot assess functional diseases. It cannot detect wall thickness and luminal diameter. It is difficult to diagnose if biopsy samples are very small. Complications of endoscopic biopsy are very rare with a well experienced endoscopic surgeon. They include perforation, laceration of major blood vessels and mucosal bleeding.

### Conclusion

A wide variety of neoplastic and non-neoplastic lesions were diagnosed in the present study. The most common non-neoplastic lesion was chronic non-specific gastritis and the most common neoplastic lesion was moderately differentiated squamous cell carcinoma of esophagus. Early endoscopy and biopsy with adequate sample size can help the surgeon to detect unsuspected cases like lymphocytic colitis and also to diagnose malignancies at early stage. Hence a proper management can be given to the patients at the earliest. However, certain diseases of deeper sites could not be diagnosed by endoscopic biopsy which further needed evaluation. Hence appropriate use of biopsy during endoscopic procedure is necessary to categorize the gastrointestinal lesions.

**Authors' Contribution**

None

**Conflict of Interests**

None

**Ethical Considerations**

None

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None

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