



## Original Research Article

# A study of histopathological features of upper gastrointestinal tract endoscopic biopsies in a tertiary care centre

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## ABSTRACT

**Background:** Upper gastrointestinal tract (UGIT) comprises of esophagus, stomach and duodenum till the second part. Diseases affecting this region include inflammatory lesions, dysplasias, benign neoplasms and malignancies. Endoscopic biopsy and histopathological examination is considered as gold standard for gastrointestinal disorders. Endoscopic biopsy aids in early diagnosis of malignancy and better patient management. Present study was conducted with an aim of studying various histopathological features of endoscopic biopsies obtained from the UGIT.

**Materials and Methods:** This study was a retrospective study of all UGIT endoscopic biopsies that were received from January 2015 to April 2020. Archived hematoxylin and eosin stained slides were retrieved and reviewed for various morphological abnormalities.

**Results:** During the study period 70 endoscopic biopsies from the UGIT were received. The incidence of malignancy was 74% and non-neoplastic lesions amounted to 26% of the biopsies. Biopsies from the esophagus (63%) constituted the major portion, followed by stomach (34%) and duodenum (3%).

**Conclusion:** In our study incidence of malignancy outnumbered the non-neoplastic conditions. Esophagus was the most commonly biopsied site and squamous cell carcinoma of middle part of the esophagus was the most common malignancy. Inflammatory conditions constituted major part of the non-neoplastic lesions.

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## 1. Introduction

Upper gastrointestinal tract (UGIT) comprises of esophagus, stomach and duodenum till the second part.<sup>1</sup> Diseases affecting this region include inflammatory lesions, dysplasias, benign neoplasms and malignancies.<sup>2,3</sup> All these lesions present with similar symptoms which often tend to be non-specific.<sup>4-6</sup> First line investigations include non-invasive modalities like imaging coupled with laboratory investigations which may not provide conclusive diagnosis. Endoscopy is helpful in such situations.<sup>5</sup> Malignancies of this region are the major causes for morbidity and one of the leading causes for

mortality. Endoscopy is used in visualising the mucosa and obtaining samples from suspicious areas.<sup>5</sup> It also helps in diagnosing and monitoring various diseases.<sup>4,7</sup> Endoscopic biopsy and histopathological examination are considered as gold standard diagnostic procedures in gastrointestinal diseases.<sup>2,8</sup> Endoscopic biopsy aids in early diagnosis of malignancy and better patient management.<sup>9</sup>

## 2. Aims and Objectives

1. To study the incidence of malignancy in the upper gastrointestinal tract endoscopic biopsies.
2. To classify neoplastic lesions and study their histopathological features.

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3. To study the histopathological features of various non-neoplastic lesions.

### 3. Materials and Methods

This was a retrospective study of all endoscopic biopsies of upper gastrointestinal tract that was received in the Department of Pathology, Hassan Institute of Medical sciences during the period of January 2015 to April 2020. All endoscopic biopsies of upper gastrointestinal tract irrespective of age and sex were included in the study. Biopsies with incomplete clinical data and autolysed tissue were excluded from the study. Demography and clinical data were collected from the biopsy request forms. Archived hematoxylin and eosin stained slides were retrieved and reviewed for various morphological abnormalities. Present study was approved by the institutional ethical committee.

### 4. Results

During the study period a total of 70 upper gastrointestinal tract biopsies were received. Biopsies from males amounted to 63% of the cases as compared to females which were 37% of the cases. The most frequently biopsied age group was 6<sup>th</sup>-7<sup>th</sup> decade followed by 7<sup>th</sup>-8<sup>th</sup> and 5<sup>th</sup>-6<sup>th</sup> decade. Biopsies from the esophagus (63%) constituted the major portion. This was followed by stomach (34%) and duodenum (3%). The incidence of malignancy was 74% and non-neoplastic lesions amounted to 26% of the biopsies.

**Table 1:** Biopsy Site and lesion distribution

Biopsy Site	Neoplastic	Non Neoplastic	Total	Percentage
Esophagus	37	7	44	63%
Stomach	15	9	24	34%
Duodenum	00	2	2	3%
Total	52(74%)	18(26%)	70	100%

In the esophagus, middle third (62%, n=27) was the most frequently biopsied site followed by lower end of esophagus (27%, n=12) and upper esophagus (11%, n=5). Neoplastic lesions of the esophagus were most common (84%, n=37) compared to non-neoplastic lesions (16%, n=7). Most common age group for malignancy was 6<sup>th</sup>-7<sup>th</sup> decade. Squamous cell carcinoma constituted 79% (n=29) of the malignant lesions found in the esophagus with middle part of the esophagus being the most involved site. Among the non neoplastic lesions chronic non-specific esophagitis was the maximum observed lesion.

In the stomach majority of the lesions were neoplastic (63%, n=15). Adenocarcinoma was the most common malignancy (60%) with antrum of the stomach being the most frequently involved site (47%). The most frequent non neoplastic condition was chronic non-specific gastritis (56%).

**Table 2:** Neoplastic lesions observed in esophagus

Lesions	Upper Esophagus	Middle Esophagus	Lower Esophagus	Total
Squamous cell carcinoma	4	22	3	29(79%)
Adenocarcinoma	0	1	3	4(11%)
Adenosquamous carcinoma	0	0	2	2(5%)
High grade dysplasia	0	2	0	2(5%)
Total	4 (11%)	25(67%)	8(22%)	37

**Table 3:** Non-neoplastic lesions - esophagus

Lesion	Cases	Percentage
Chronic non-specific esophagitis	6	85%
Normal esophagus	1	15%
Total	7	100%

**Table 4:** Neoplastic lesions - stomach

Lesion type	Number	Percentage
Adenocarcinoma	9	60%
Signet ring cell	3	20%
Poorly differentiated carcinoma	3	20%
Total	15	100%

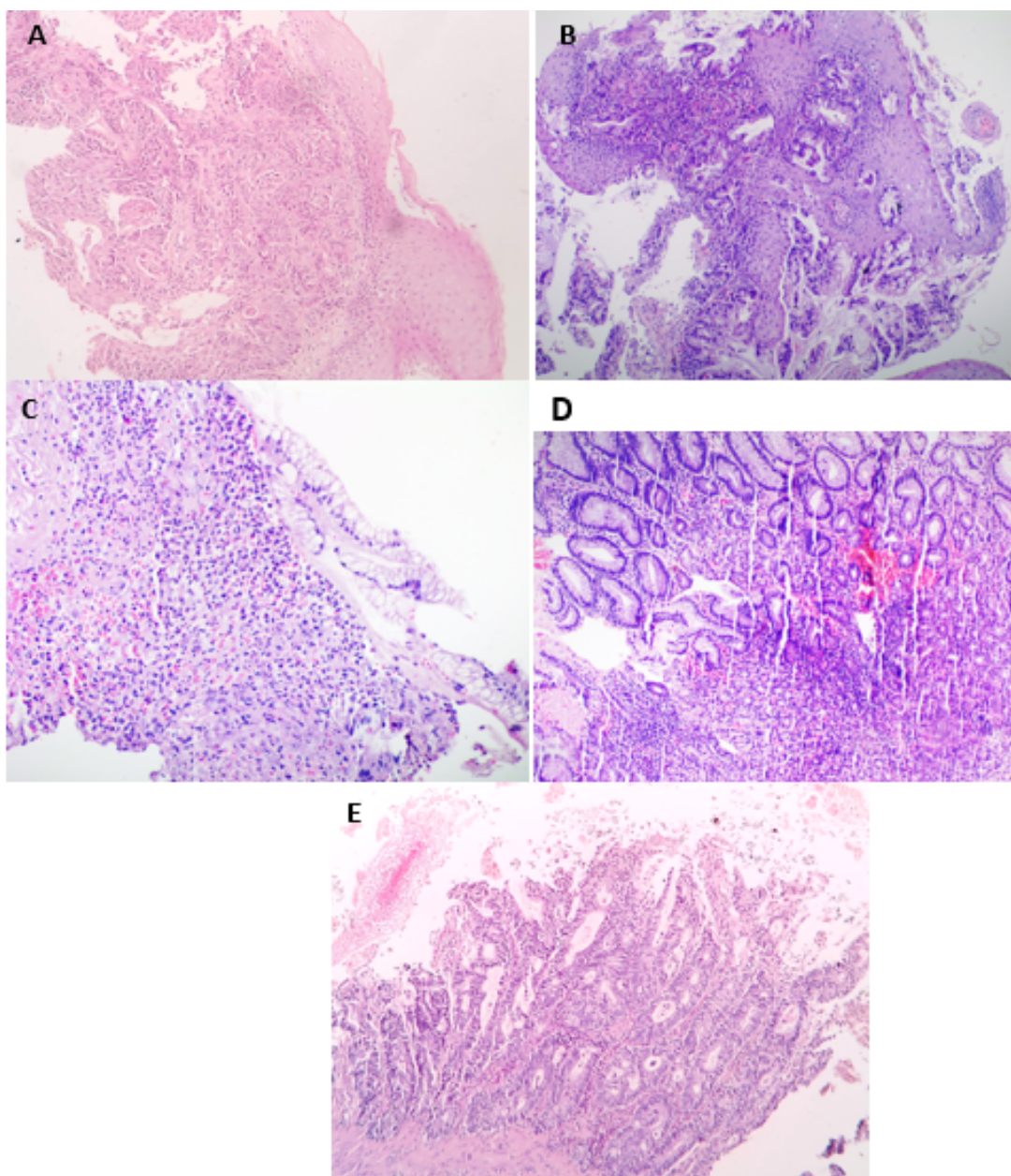
**Table 5:** Non-neoplastic lesions - stomach

Lesion	Number	Percentage
Acute non-specific gastritis	1	11%
Chronic non-specific gastritis	5	56%
Gastric ulcer	3	33%

In the duodenum all the biopsies were chronic non-specific duodenitis (n=2). No neoplastic lesions were found in this study period.

### 5. Discussion

The present study was conducted on all the endoscopic biopsies of UGIT that were received during the period of January 2015 to April 2020. Total of 70 cases were included in this study. The most frequently biopsied age group was 6<sup>th</sup>-7<sup>th</sup> decade which was similar to studies conducted by Rashmi et al and Somani et al.<sup>4,9</sup> Malignancies are common with advancing age and endoscopy study and biopsies are justified with slightest of suspicion. We observed a male preponderance in our study. This has also been observed in various previously conducted studies.<sup>4,7,9,10</sup> The incidence of malignant lesions were more in the present study which was also noted by Bhat et al.<sup>1</sup> This could be due to infrequent biopsies of non-neoplastic lesions and symptomatic treatment of the same. Esophagus was the most frequent site of biopsy followed by stomach and



**Fig. 1:** A: Squamous cell carcinoma esophagus; B: Adenocarcinoma esophagus; C: Acute non-specific gastritis; D: Chronic non-specific gastritis; E: Adenocarcinoma of stomach

duodenum. Similar observations were made by Shreedevi et al in their study.<sup>11</sup> This is in contrast to previous studies done by Rashmi et al., Rani D et al, Somani et al. and Ganga H et al., where stomach constituted the major proportion of the biopsies.<sup>4,7,9,10</sup> This may be attributed to the geographical and environmental factors.

In the esophagus, squamous cell carcinoma was the most frequent malignancy with middle third of the esophagus being the most frequent site. This was in consensus with studies done by Somani et al and Mohan et al.<sup>9,12</sup> Theresa et al also demonstrated squamous cell carcinoma to be the most

common malignancy in the esophagus.<sup>13</sup> Adenocarcinoma and adenosquamous carcinoma were predominantly seen in the lower esophagus. Similar observations were noted by Mohan et al.<sup>12</sup> Nonspecific esophagitis constituted major part of non-neoplastic lesions of esophagus which was in consensus with Sheikh et al study.<sup>14</sup>

Malignant lesions were predominant in gastric biopsies and adenocarcinoma was the most frequent histological type. Similar results were reported by Mohan et al.<sup>12</sup> Signet ring cell carcinoma and poorly differentiated carcinoma were seen in equal incidence in our study.

Chronic non-specific gastritis contributed to majority of non-neoplastic lesions followed by gastric ulcer and acute non-specific gastritis. This was in concordance with Rashmi et al study.<sup>4</sup> Banakar et al also showed that chronic non-specific gastritis to be the most common non neoplastic lesion.<sup>15</sup> No cases of *H. pylori* gastritis were identified in our study. Due to smaller sample size and availability of other bedside rapid tests to confirm diagnosis might have contributed this observation.<sup>9,16</sup> All biopsies from the duodenum showed chronic non-specific duodenitis which was in concordance with Memom et al study.<sup>17</sup> No malignant lesions were observed in duodenum in our study similar to observations made by Aruna et al.<sup>18</sup>

Endoscopic visualisation coupled with biopsy of the UGIT is a very important investigative modality. Histopathology helps in early detection of malignancies to provide better management to patients. Although histopathology has limitations when processing small biopsies, multiple biopsies can help to overcome these difficulties.

## 6. Conclusion

In our study incidence of malignancy outnumbered the non-neoplastic conditions. Esophagus was the most commonly biopsied site and squamous cell carcinoma of middle part of the esophagus was the most common malignancy. Inflammatory conditions constituted major part of the non-neoplastic lesions.

## 7. Conflict of Interest

There are no conflicts of interest in this article.

## 8. Source of Funding

None.

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