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HISTOPATHOLOGICAL SPECTRUM OF ENDOCSCOPIC GASTROINTESTINAL BIOPSIES AT A TERTIARY HOSPITAL

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Abstract

INTRODUCTION: Gastrointestinal disorders are among the most prevalent issues in clinical practice, and the final diagnosis is based on histopathological confirmation. Endoscopic biopsies are taken for patient evaluation and are a key component of effective management. The current study is done to analyse the histopathological spectrum of upper gastrointestinal tract endoscopic biopsies

MATERIALS AND METHODS: This prospective, descriptive, cross-sectional study was conducted on the upper GIT endoscopic biopsies and the histopathological assessment was done at the department of pathology in a tertiary centre. Over the course of the study, 100 upper gastrointestinal endoscopic biopsies were taken. Histopathological examinations were performed with H&E, Giemsa, and Periodic acid-Schiff stains. Diagnoses were divided into non-neoplastic and neoplastic lesions based on WHO recommendations. Data were analyzed using SPSS 23.0 to determine the frequency of neoplastic and non-neoplastic cases.

RESULTS: out of 100 cases most of the patients were in the age group of 51-60 years followed by the age group of 61-70 years. Site wise distribution of endoscopic biopsies was- Oesophagus 17 cases (17%), GE junction 04 cases (4%), Stomach 58 cases (58%), duodenum 21 cases (21%), Among 100 upper gastrointestinal biopsies, 79 (79%) were non-neoplastic and 21 (21%) were neoplastic. Non-neoplastic lesions were predominantly chronic gastritis. Neoplastic lesions were mainly a squamous cell carcinoma in Oesophagus.

CONCLUSION: Biopsy sampling of the upper gastrointestinal mucosa during diagnostic endoscopy yields valuable insights. A common site of GIT endoscopic biopsy in the stomach. Non-neoplastic lesions are more common than neoplastic lesions. The most common non-neoplastic lesion is chronic gastritis, and the most common malignancy is squamous cell carcinoma of the oesophagus. we can infer that endoscopy is incomplete without biopsy, and the combination of methods provides a powerful diagnostic tool for improved patient management.

KEYWORDS: biopsy; endoscopy, Upper GIT, histopathology; Squamous cell carcinoma.

INTRODUCTION:

Disorders of the upper gastrointestinal (GI) tract are among the most often seen patients in clinical practice globally [1]. Lesions of the gastrointestinal system include both neoplastic and non-neoplastic types, including infections, inflammation, vascular problems, and physical or chemical injuries, among others [2]. Upper gastrointestinal endoscopy is now

recognized as a standard method for both diagnosis and therapy in the majority of individuals exhibiting upper gastrointestinal symptoms [3].

The method is straightforward, secure, and well-tolerated, allowing for direct sight of the pathological location. The primary indications for upper gastrointestinal endoscopic biopsy encompass the assessment of dyspepsia, odynophagia, dysplasia, peptic ulcer disease, infections, inflammatory diseases, vascular problems, mechanical issues, toxic and physical responses, including radiation harm and neoplasms. It produces biopsies from previously inaccessible areas without necessitating significant resection. Biopsies are performed to ascertain a definitive diagnosis or to monitor the progression of a specific lesion or illness. It aids in assessing the degree and severity of a disease, evaluating therapeutic responses, and identifying malignancies or their precursors. Endoscopic practice is seeing a transformation due to advancements in very precise video-endoscopy, magnifying endoscopy, and procedures like chromo-endoscopy, autofluorescence imaging, and narrow band imaging [4]. An endoscopic biopsy, followed by histological analysis, is a comparatively safe treatment and the prevailing gold standard for evaluating patients with gastrointestinal complaints [5].

The present study was conducted to find the histopathological spectrum of upper gastrointestinal tract endoscopic biopsies

MATERIALS AND METHODS:
This prospective descriptive cross-sectional study was conducted during a period of one year in the department of pathology at Viswabharathi Medical College, Kurnool, Andhra Pradesh. After receiving ethical approval from the Institutional Ethics Committee, data collecting was started. The study included 100 patients who had upper GI endoscopic biopsies.

Inclusion Criteria: Patients of all age groups and both sexes, patients undergoing upper GIT endoscopic biopsies
Exclusion Criteria: Any mouth and pharynx lesion, every duodenal biopsy performed after the second part of the duodenum, and insufficient biopsies.

All endoscopic biopsy specimens received by the Department of Pathology were immersed in saline and placed on filter paper with mucosal surface upwards. The filter paper was then submerged in 10% formalin to ensure its fixation. After sufficient fixation, the whole tissue was regularly treated and embedded in paraffin, with the mucosal surfaces on top. Five micron thick slices were cut perpendicular to the surface, with four to five sections created on each slide. Each segment was stained with H&E dye and examined under a microscope. Special stains, such as Periodic Acid-Schiff (PAS) for mucin, glycogen, and fungal components, and Giemsa stain for probable Helicobacter pylori, were utilized as needed. Spindle cell tumors were diagnosed as gastrointestinal stromal tumours using immunohistochemistry. Neoplastic lesions comprised adenocarcinoma and squamous cell carcinoma. Non-neoplastic lesions include papillomas, infections, and ulcers. The diagnosis was divided into non-neoplastic and neoplastic lesions. Tumors were detected using the World Health Organization's (WHO) histological categorization of gastrointestinal tumors [6].

RESULTS:
Among 100 cases, the majority of patients were aged 51-60 years, followed by those aged 61-70 years. The patient age range was 11 to 94 years, with a mean age of 50.86±17.68 years, as shown in the table 1
Table 1

TABLE 1: AGE WISE DISTRIBUTION OF PATIENTS

Age group (years)	No. of cases	Percentage (%)
11-20	8	8
21-30	9	9
31-40	11	11
41-50	12	12
51-60	27	27
61-70	21	21
71-80	8	8
>80	4	4
Total	100	100
Mean age (years)	50.86±17.68	

Out of 100 patients, 64 were males and 36 were females. The male to female ratio was 1.77:1 as shown in Table 2

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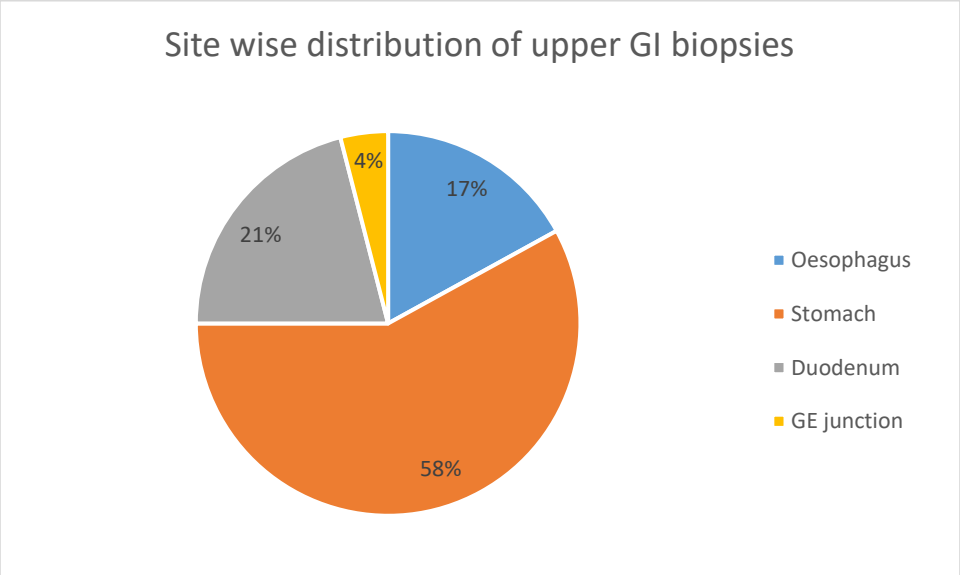
TABLE 2: GENDER WISE DISTRIBUTION OF PATIENTS

Gender	No. of cases	Percentage (%)
Male	64	64
Female	36	36
Total	100	100

Site wise distribution of endoscopic biopsies was- Oesophagus 17 cases (17%), GE junction 04 cases (4%), Stomach 58 cases (58%), duodenum 21 cases (21%), as shown in Fig.1

FIG 1: SITE WISE DISTRIBUTION OF UPPER GI BIOPSIES



Among all the upper gastrointestinal tract biopsies, non-neoplastic lesions were 79 (79%) and neoplastic lesions were 21 (21%) as shown in Table 3

TABLE 3: DISTRIBUTION OF ALL LESIONS

Nature of lesion	No. of cases	Percentage (%)
Non neoplastic	79	79
Neoplastic	21	21

Among the 79 Non-neoplastic lesions, 4 were in oesophagus, 2 were in GE junction, 55 were in Stomach and 18 were in duodenum. Out of 4 esophageal biopsies, 1 case (25%) showed Barrett's oesophagus, 1 case (25%) showed Barrett oesophagus with low-grade dysplasia**,** 1 case (25%) showed oesophagitis and 1 case (25%) showed Achalasia cardia. Out of 2 GE Junction biopsies, 1 case showed low grade dysplasia and 1 case showed Barret's oesophagus. Out of 55 Stomach biopsies, maximum number of cases (36.3%) showed Chronic gastritis. Out of 18 Duodenum biopsies, maximum number of cases showed Chronic non-specific duodenitis as shown in Table 4

TABLE 4: HISTOPATHOLOGICAL SPECTRUM OF NON-NEOPLASTIC LESIONS

Type	No. of cases	Percentage (%)
Oesophagus (n=4)		
Barrett's oesophagus	1	25
Barrett oesophagus with low-grade dysplasia	1	25
oesophagitis	1	25
Achalasia cardia	1	25
GE Junction (n=2)		
low grade dysplasia	1	50
Barret's Oesophagus	1	50
Stomach (n=55)		
Hyperplastic gastric mucosa	4	7.2

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Acute gastritis	3	5.4
Chronic gastritis	20	36.3
H. Pylori gastritis	6	10.9
Inflammatory polyp	12	22
Peptic ulcer	3	5.5
Non-specific inflammatory pathology	7	12.7
Duodenum (n=18)		
Chronic non-specific duodenitis	14	77.8
Chronic duodenitis with H. pylori	2	11.1
Hyperplastic polyp	2	11.1

Among the 21 Neoplastic lesions, 13 were in Oesophagus, 2 were in GE junction, 3 were in Stomach and 3 were in Duodenum as shown in Table 5

TABLE 5: HISTOPATHOLOGICAL SPECTRUM OF NEOPLASTIC LESIONS

Type	No. of cases	Percentage (%)
Oesophagus		
Squamous cell carcinoma	13	62
Gatroesophageal junction		
Squamous cell carcinoma	2	10
Stomach		
Adenocarcinoma	3	14
Duodenum		
Adenocarcinoma	3	14
Total cases	21	100

DISCUSSION:

100 upper gastrointestinal endoscopic biopsies were included in the study; there were 17 (17%) esophageal biopsies, 4 (4%) GE junction biopsies, 58 (58%) gastric biopsies, and twenty-one (21%), duodenal biopsies. Our study observed that the stomach was the most frequent location for endoscopic biopsy, which was consistent with the findings of Maiti et al. [7], Jaffary et al. [8], and Alghamdi et al. [9].

In the current study, the most incidence of the gastrointestinal lesion occurred in the fifth and sixth decades. Another research found similar findings, with the most typically impacted age group being 51-70 years [10]. Of the 100 patients who had upper gastrointestinal tract endoscopic biopsies, 36% were female and 64% were male. This was supported by other research conducted by Shennak MM et al [11] and JC Paymaster et al [12].

With respect to oesophageal biopsies, we received 17 cases. 13 of the cases were malignant, whereas 4 were benign. The malignant cases were of the squamous cell carcinoma type. Bilal A Sheikh [13] and Islam et al. [14] found comparable evidence to our study.

Of the total 58 cases of stomach, 55 were non neoplastic and 3 were neoplastic. Chronic gastritis was the most prevalent lesion. Similar results were reported in the study conducted by Hirachand et al. [16] and Venkatesh V [15].

Of the 21 duodenal cases, 3 were malignant (adenocarcinoma). Of the remaining 18 cases, non-neoplastic conditions were observed, with chronic nonspecific duodenitis being the most prevalent. This resembles the work conducted by Krishnappa R [17].

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CONCLUSION:

Biopsy sampling of the upper gastrointestinal mucosa during diagnostic endoscopy yields valuable insights. A common site of GIT endoscopic biopsy in the stomach. Non-neoplastic lesions are more common than neoplastic lesions. The most common non-neoplastic lesion is chronic gastritis, and the most common malignancy is squamous cell carcinoma of the oesophagus. we can infer that endoscopy is incomplete without biopsy, and the combination of methods provides a powerful diagnostic tool for improved patient management.

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