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HISTOMORPHOLOGICAL SPECTRUM OF ENDOSCOPIC BIOPSIES IN UPPER GASTROINTESTINAL LESIONS- A PROSPECTIVE STUDY.

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Abstract.

Objectives:

Upper gastrointestinal tract illnesses are among the most typical issues in clinical practice. Many diseases can affect the upper GIT. One of the key components of creating a successful treatment strategy is making a correct diagnosis of upper gastrointestinal problems, which necessitates histological confirmation. Identify the range of upper gastrointestinal tract histopathological lesions and establish endoscopic biopsies as a valuable tool for accurately diagnosing and treating a variety of upper gastrointestinal tract lesions.

Materials & Methods:

The endoscopic biopsies of the upper GIT were the subjects of a prospective study, and the histological evaluation took place at the Department of Pathology at a tertiary care center for over a year.

Results:

326 endoscopic biopsies from a total of 288 patients were examined. Patients who were men outnumbered patients who were women. A 9-88 age range was noted. There were cases involving the esophagus (18.4%), the GE junction (3.06%), the stomach (57.05%), the neo stomach (GJstoma), and the duodenum (20.85%). 20.24 percent of cases were benign neoplasms, 18.40 percent were malignant neoplasms, and 61.34 percent were non-neoplastic. The most often diagnosed inflammatory lesion, gastritis, was identified by histopathology as having 63 cases (63%), while the majority of the time identified malignant lesion, esophageal squamous cell carcinoma, had 19 instances (63.33%).

Conclusion:

In our study, 31.18% of neoplastic tumors and 69.89% of non-neoplastic lesions were found in the stomach (57%), which was also the most frequently used site for upper GI endoscopic biopsy. The most typical kind of stomach tumor is adenocarcinoma. Endoscopy enables the collection of biopsy samples from previously inaccessible sites without requiring a sizable resection.

Recommendation:

It is recommended to comprehend the variety of abnormalities that can be seen in these specimens to make the correct diagnosis and provide better patient treatment.

Keywords: Biopsy, endoscopy, Upper GIT, histopathology, dysphasia, Submitted: 2023-09-22, Accepted: 2023-09-26

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1. INTRODUCTION.

Upper GI illnesses have a high morbidity and mortality rate and are among the most often seen issues in clinical practice. Similar symptoms that are difficult to diagnose are present in various pathologies affecting the upper gastrointestinal tract clinically. When evaluating these conditions, there are several diagnostic investigations accessible, but Endoscopy is the initial diagnostic test to be performed [1-2].

Currently, endoscopic biopsy is the primary method for identifying gastrointestinal neoplasms. 12.9% of gastrointestinal neoplasms are malignancies [3]. An endoscopy or colonoscopy is now sufficient when a biopsy is taken for histological investigation. They can also be used to assess a disease's development and severity, identify complications, and evaluate how well a treatment performs in addition to diagnosis.

A significant development in diagnosing gastrointestinal tract (GIT) abnormalities came with the creation of the upper gastrointestinal flexible fiber optic endoscope in 1968. For most people with upper GI symptoms, upper GIT endoscopy is currently recognized as an established approach to evaluation and treatment [3-4]. The technique is straightforward, safe, and well-tolerated when the pathogenic location can be identified. The evaluation of dyspepsia, odynophagia, dysplasia, peptic ulcer disease, infections, inflammatory illnesses, vascular disorders, mechanical issues, and chemical and physical reactions, including radiation harm and neoplasms, are the main indications for upper GIT endoscopic biopsy [4-6].

1.1. *Aim of the Study.*

- *To make endoscopic biopsies a helpful tool for accurately detecting and treating a variety of upper gastrointestinal tract lesions.*
- *To determine the variety of upper gastrointestinal tract histological lesions.*

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2. MATERIALS AND METHODS.

2.1. *Study design.*

This prospective investigation was conducted into the upper GIT endoscopic samples and lasted a year. Patients of different ages and genders with upper GI symptoms underwent endoscopic examinations and underwent biopsies. Specimens were routinely kept in 10% formalin for fixation and then treated and examined with H&E stain. Where necessary, specialized stains like PAS and Giemsa were used.

2.2. *Inclusion Criteria.*

All upper GI tract endoscopic biopsies were required to be included.

2.3. *Exclusion Criteria.*

- *Every mouth and pharynx lesion*
- *Every duodenal biopsy performed after the second portion of the duodenum*

In the one year that patients with upper GI endoscopic biopsy samples were examined, 17% of the esophagus, 79% of the stomach, and 4% of the duodenum were the sources of the samples. Patients between the ages of 51 and 60 had the most biopsies performed, followed by those between the ages of 41 and 50 and 61 to 70. Age groups 81 to 90 had the lowest occurrence, followed by 20 to 30 and 31 to 40. In the 20 to 30-year age range, there were two men and three women patients. Three male patients between the ages of 81 and 90 were present.

Malignant oesophageal lesions comprised 7 of the 12 cases (58.33%), while non-neoplastic lesions comprised 5 of the 12 cases (41.67%). Squamous cell carcinoma comprised 71.4% (5 cases), and adenocarcinoma comprised 28.6% (2 instances) of the oesophageal carcinomas. Squamous cell carcinoma in the current study usually manifested as polypoid growth, whereas adenocarcinoma in the lower portion of the oesophagus manifested as fungating growth. Between the ages of 51 and 60, squamous cell oesophageal cancer was most prevalent. Oesophageal cancer was more common in younger age groups.

Stomach cancer was the most typical stomach lesion, occurring around (54%), followed by gastritis (31%). The pyloric antrum of the stomach (50.87%) and body (38.61%) of the stomach were the most frequently involved sites of gastric lesions, with ulcerative growth occurring in most cases. Papillary/tubular adenocarcinoma was the most prevalent among the malignant lesions of the stomach in the current investigation. Six incidences of signet ring cancer were reported. Endoscopically, gastric malignancy was primarily seen as ulcerative growth (58%) and diffuse/infiltrative growth (22.5%). One duodenal biopsy was for an inflammatory polyp, and the other two were for chronic duodenitis. These three examples are all male.

3. RESULTS.

307 endoscopic samples from 288 patients were evaluated, with a male-to-female ratio of 1.57:1. There was a noticeable age range of 9 to 88. The fourth and fifth centuries saw the majority of the incidents. The oldest patient was an 88-year-old man with esophageal squamous cell cancer, while the youngest patient was a 9-year-old child with celiac disease.

The oesophagus comprised (18.4%) of cases of the site-wise distribution of endoscopic biopsies, followed by the stomach in (57.05%) and the duodenum in (20.85%), the gastroesophageal junction in (3.06%), and the neostomach in (0.61%).

There were 60 overall diagnosed, based on histology analysis, malignant instances. Among them, the esophagus accounted for the majority (63.33%), followed by the stomach (23.33%), duodenum (6.66%), and OGJ (6.66%).

The antrum (68%) and the body of the stomach (23.5%) were the areas with the most lesions (Table 1). Of the 60 esophageal samples, 63.33% had squamous cell cancer. There were 6.66% cases of low-grade dysplasia, 10% cases of high-grade dysplasia, 3.33% cases of dysplasia connected to Barret's esophagus, and 6.66% cases of Barret's esophagus. There were 10% cases of chronic nonspecific esophagitis.

Based on morphology, all malignant neoplastic lesions of the esophagus were squamous cell carcinomas, with 42.1% of the female cases and 57.8% of the male cases. The middle esophagus (42.1%) was the site of the majority of lesions, followed by the lower (31.57%) and upper (26.31%) esophagus. Based on histopathological grading, patients ranged from moderately differentiated (63.15%) to highly differentiated (26.31%) to poorly differentiated (10.52%).

Infected with H. pylori were 42.6 percent of the 122 cases of chronic gastritis (Table 2). Neutrophilic inflammatory cells (activity) were seen in cases of gastritis associated with H. pylori in most cases (42.6%), whereas mixed inflammation was seen in patients in 24.13 percent of cases.

The number of benign gastric lesions was 36. Of these, 77.7% of the polyps were hyperplastic, and 22.2% were fundic gland polyps. Diffuse adenocarcinoma instances were present in 28.5% of cases. Distribution by site revealed that 28.5% of cases came from the stomach's body, and 71.4% came from the antrum. Of 10 GE junction specimens, 60% had adenocarcinoma, 20% had low-grade dysplasia, and 20% had Barrett's esophageal cancer (Table 3 & 4).

4. DISCUSSION.

Male stomach and esophageal cancers are the most common types. Esophageal cancer is the third most frequent cancer in women, after breast and cervical cancer. To make an early treatment decision, endoscopic biopsies are examined histopathologically to establish whether a condition is benign or malignant. More endoscopies and biopsies have been performed to identify instances at the earliest stage since gastrointestinal cancers become more prevalent as people age. An endoscopic biopsy and histological investigation are justified in middle-aged and older patients with even the slightest clinical suspicion.

The male-to-female ratio of 1.57: 1 for patients undergoing endoscopic biopsies in the current investigation was similarly seen in studies by Sandhya PG et al. and Rashmi K et al. [6, 4]. The gender ratio may benefit men because they are

Table 1: **Gastrointestinal lesions distributed according to site.**

Location	Percentage (%)
Body	23.5%
Fundus & Cardia	8.6%
Pylorus & Antrum	68%

Table 2: **Stomach inflammation lesions.**

Lesion	Percentage
Gastric ulcers	2.9%
Acute non-specific gastritis	7.3%
non-specific gastritis (Chronic)	36.7%
gastritis with low-grade dysplasia (Chronic)	4.4%
gastritis with intestinal metaplasia (Chronic)	5.8%
gastritis with H pylori (Chronic)	42.6%

Table 3: **Findings from endoscopy on stomach cancer.**

Endoscopic ftndings	Percentage
Ulceroproliferative	42.8%
Ulcerative growth	28.5%
Flattening of mucosa	14.2%
Erythematous appearance	14.2%

Table 4: **Duodenum Lesions.**

Lesions	Percentage
Duodenitis with H. pylori (Chronic)	17.6%
Non-specific duodenitis (Chronic)	52.9%
Hyperplastic polyp	11.7%
Celiac diseases	5.8%
Malignant lesions	8.8%
Tubular adenoma	5.5%

more exposed to risk factors than women are and because gastrointestinal cancers affect men more frequently than women. Because males are more exposed to risk factors than women and gastrointestinal malignancies, strike men more frequently than women, the gender ratio may be advantageous to men [7-8].

According to this study's analysis, the most frequent locations for biopsies were the esophagus, duodenum, and stomach. In our examination, most of the upper GIT lesions were not cancerous. The current investigation found 63.33% of the 60 malignant lesions in the esophagus.

Gastric lesions were present in the great majority of patients. The 186 stomach biopsies included a 73% percentage of inflammatory lesions. In the current study, H. pylori-associated chronic gastritis was common among the stomach's inflammatory lesions.

The biopsies done on 186 stomachs had malig-

nant tumors in 7.5%. There were 28.3% cases of diffuse carcinoma and 71.45 cases of intestine adenocarcinoma. For histological analysis of the first two sections of the duodenum, 68 endoscopic biopsies were provided. Of the ten lesions at the GE junction, 60% had malignancy. Most cases had non-specific duodenitis [9].

At a diagnostic endoscopy, a biopsy sample of the upper gastrointestinal mucosa yields valuable information. Both neoplastic and non-neoplastic lesions were reported. 58% of the upper endoscopic biopsies performed in our study were from the stomach, and 92% of the tumors were benign, while 8% were malignant. The most frequent inflammatory stomach lesion is H. pylori; the most frequent malignant stomach lesion is chronic gastritis, intestinal-type adenocarcinoma [10-11]. The second most common site for chronic non-specific duodenitis was the duodenum. Squamous cell carcinoma was the most often found malignant lesion and made up most of the lesions in the evaluated esophageal samples [12-13].

The simple, affordable, safe, well-tolerated, and minimally invasive upper gastrointestinal endoscopic method offers accurate diagnosis and supports prompt treatment. Even though histopathology is the gold standard, biopsy offers a fantastic opportunity to establish a specific/conclusive diagnosis, aiding in early management and treatment.

5. CONCLUSION.

Due to minute biopsy material, handling, and processing artifacts, diagnostic interpretation can occasionally be limited. It is advised to take numerous endoscopic samples from mucosa that appear aberrant. The histopathological findings were used to overturn inconsistent endoscopic results whenever they were present. Therefore, we conclude that endoscopy is complete with biopsy, and combining approaches offers a significant diagnostic tool for improved patient management research.

6. LIMITATIONS.

The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of a comparison group also poses a limitation for this study's findings.

7. RECOMMENDATION.

It is recommended to comprehend the variety of abnormalities that can be seen in these specimens to make the correct diagnosis and provide better patient treatment.

8. ACKNOWLEDGEMENT.

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9. LIST OF ABBREVIATIONS.

GIT- gastrointestinal tract
GE- Gastroesophageal
PAS- Placenta accreta spectrum
OGJ- oesophagogastric junction

10. SOURCE OF FUNDING.

The study had no funding.

11. CONFLICT OF INTEREST.

The authors report no conflicts of interest in this work.

12. PUBLISHER DETAILS.

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