Section: Pathology

Original Research Article

TO ASSESS THE UTILITY OF ENDOSCOPIC BIOPSIES FOR IDENTIFYING THE SPECTRUM OF HISTOPATHOLOGICAL LESIONS AND MANAGEMENT OF UPPER GASTROINTESTINAL TRACT DISORDERS – A STUDY IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: Upper gastrointestinal tract disorders are among the most frequently encountered issues in clinical practice, often associated with significant morbidity and mortality. Endoscopic biopsy is a common procedure performed in hospitals to evaluate a range of both benign and malignant lesion. The aim is to determine the employment of endoscopic biopsies for the diagnosis of upper gastrointestinal tract lesions.

Materials and Methods: The study was conducted in the Department of Pathology at the Hind Institute of Medical Sciences, Safedabad, Barabanki, Uttar Pradesh. It was designed as a cross-sectional, observational, and prospective study, carried out over a period of 18 months and included 130 patients presenting with upper gastrointestinal (GI) tract symptoms indicative of ulcers, abnormal growths, or precancerous lesions.

Results: Out of a total of 130 cases, 85 cases (65.39%) were classified as non-neoplastic, while 45 cases (34.61%) were identified as neoplastic. Histopathological analysis of esophageal lesions identified Squamous cell carcinoma (well differentiated and moderately differentiated) as the most prevalent diagnosis (08 cases each), particularly in the middle third of the esophagus. Adenocarcinoma was also significant, especially in the lower segment. In gastric lesions, gastritis was the most common finding, with adenocarcinoma predominantly affecting the antrum and pylorus.

Conclusion: In conclusion, this study underscores the importance of integrating endoscopic and histopathological evaluations for accurate diagnosis and management of upper GI lesions. The findings also emphasize the diagnostic significance of proliferative endoscopic findings, which are strongly associated with malignancies.

Keywords: upper GI disorders; Endoscopic biopsies; Squamous cell carcinoma; Adenocarcinoma.

INTRODUCTION

The esophagus, stomach, and the first part of duodenum of upper gastrointestinal tract are among the most frequently encountered issues in clinical practice, often associated with significant morbidity and mortality. Endoscopic biopsy is a common procedure performed in hospitals to evaluate a range of inflammatory, benign and malignant lesions.

The prevalence of upper abdominal symptoms, primarily upper abdominal pain or discomfort, was reported to range between 8% and 54%, heartburn in

10% to 48% of cases and regurgitation in 9% to 45% and either or both symptoms occurring in 21% to 59% of individuals.[1]

Major indications for upper gastrointestinal tract endoscopic biopsy include the evaluation of dyspepsia, odynophagia, dysplasia, peptic ulcer disease, infections, inflammatory disorders, vascular conditions, mechanical issues, toxic and physical reactions (including radiation injuries), and neoplasms. This procedure enables visual inspection and biopsies to be taken from previously inaccessible sites without the need for major resections. Biopsies are taken to establish specific diagnoses, monitor the progression of lesions or diseases, assess the extent and severity of conditions, evaluate responses to therapy, and detect cancers or their precursors.[2,3]

The field of endoscopy is evolving with advancements in video-endoscopy, magnifying endoscopy, and techniques such as chromoendoscopy, autofluorescence imaging, and narrow band imaging.[4]

Consequently, this study aims to assess the utility of endoscopic biopsy mainly taken from esophagus, stomach and first part of duodenum and determining the range of histopathological lesions in patients presenting with upper gastrointestinal disorders at the gastroenterology outpatient department (OPD) of our institution.

MATERIALS AND METHODS

A Cross Sectional Observational and Prospective Study was done over 18 months (July 2023- Dec 2024) on 130 patients presenting to the Department of Gastroenterology with upper GI tract symptoms such as dyspepsia, epigastric pain, dysphagia, loss of appetite, loss of weight and burning sensation. These patients underwent upper GI endoscopy for further evaluation and biopsy was taken on visual inspection of abnormal appearance, ulcers, abnormal growths, or precancerous lesions. These biopsy specimens, typically measuring 1 to 5 mm in diameter, includes the epithelium along with varying amounts of lamina propria and occasionally a portion of the muscularis mucosae, were sent to the Department of Pathology for processing were fixed in 10% formalin, processed by routine Paraffin processing technique, 3-4 µm sections were cut by microtome, put on a glass slide then stained by Hemotoxylin and Eosin Stain (H&E) and were studied by two experienced histopathologists. The endoscopic biopsies included were of upper gastrointestinal tract (esophagus, stomach and first part of duodenum) and included male, female and transgender of all age groups. Biopsies not taken under consideration were:

- Patients who had already received treatment for gastrointestinal malignancies
- Biopsies from mouth and pharynx
- All biopsies below the second part of the duodenum
- Surgically resected specimen of esophagus, stomach and duodenum

Sampling Method: Consecutive sampling (Non probability sampling)

Sample Size: 130

By using

p= proportion of chronic non specific gastritis in inflammatory non neoplastic lesions of upper GIT (Sahu PR. et al)5.

z= Critical value of standard normal variate at corresponding level of significance

e = Margin of error or allowable error.

Statistical Analysis & Data Collection

- Data collection was divided into two categories- clinical and Histopathological.
- All relevant clinical data was obtained from the patient's medical files as well as requisition forms received in Histopathological department.
- Clinical Data- age, gender, site of lesion, presenting complaints are recorded.

Data Management: Data obtained was entered in excel sheet called master chart for further evaluation and analysis so that conclusion can be obtained.

Data analysis: The data was entered into a Microsoft Excel spreadsheet and was analyzed using SPSS v 26.0. The appropriate tests were used to correlate the age and sex distribution of lesions occurring in the gastrointestinal tract, endoscopically and histologically. Correlation of age, sex, endoscopic, and histopathology findings were performed using Pearson's correlation. Any p value $p = < 0.05$ was considered statistically significant.

RESULTS

The present study is a prospective study of 130 consecutive upper gastrointestinal endoscopic biopsies received from July 2023 to Dec 2024 in the Department of Pathology of our college. The present study was planned to determine the spectrum of upper GI lesions by endoscopic biopsies. Following are the results of analysis of one hundred and thirty cases in the present study.

Demographic and Clinical Characteristics

Age Distribution: Among the 130 patients under study, the average age of presentation was 48.2 years. Majority of patients were in the age group of 41 – 50 years (30%). The youngest patient was 8 years old and the oldest was 88 years old. The distribution shows a general increase in frequency from the youngest age group (0-9) to the middle age group (50-59) age group, after which it slightly declines [Table 1].

Gender distribution: Males make up the majority of the patients, accounting for 66.15% of the total. Females represent 33.85% of the total patients in the study. M:F ratio was 1.9:1 [Table 2].

Presenting Symptoms and Clinical Indications for Endoscopy

Dyspepsia is the most common symptom, affecting 70.77% of patients followed by dysphagia, loss of

appetite, and burning sensation affecting 63.85%, 32.31%, and 46.92% of patients respectively. Epigastric pain and loss of weight are the least common symptoms, affecting 24.62% and 23.08% of patients, respectively [Table 3].

Site wise distribution of upper GI endoscopic biopsies: Out of the 130 upper GI endoscopic biopsy samples that were studied during the period, Esophagus is the most frequently involved site, accounting for 61.54% of cases followed by Stomach (31.54% of cases) and least involved was Duodenum with only 6.92% of cases [Table 4].

Nature of Lesion: Out of a total of 130 cases, 85 cases (65.39%) were classified as nonneoplastic, while 45 cases (34.61%) were identified as neoplastic. In the oesophagus, non-neoplastic cases were more prevalent, with 54 cases compared to 26 neoplastic cases, making it the site with the highest number of cases overall (80 cases). Similarly, in the stomach, non-neoplastic cases were more common, with 23 cases versus 18 neoplastic cases, totaling 41 cases. The duodenum had the fewest cases overall (9 cases), with nonneoplastic cases (8) significantly outnumbering neoplastic case1 [Table 5].

Analysis of variables versus lesions: The data presents a comparison between benign and malignant cases across different variables, including age, gender, and site of lesion. The age distribution shows a significant difference between the two groups ($p < 0.0001$). Among benign cases, 72.9% of patients were under 50 years old, while only 4.5% of malignant cases were in this age group. Conversely, 95.5% of malignant cases were aged 50 or older, compared to 27.1% of benign cases. This suggests that older age is strongly associated with malignancy. In terms of gender, there was no significant difference between benign and malignant cases ($p = 0.9747$). Males constituted 65.9% of benign cases and 66.7% of malignant cases, while females accounted for 34.1% and 33.3%, respectively. This indicates that gender does not play a significant role in distinguishing between benign and malignant conditions. Regarding the site of the lesion, the esophagus was the most common location for both benign (63.5%) and malignant (57.8%) cases. The stomach was involved in 27.0% of benign cases and 40.0% of malignant cases. However, the difference in lesion site distribution between benign and malignant cases was not statistically significant ($p = 0.1394$), suggesting that the location of the lesion may not be a strong predictor of malignancy [Table 6].

Endoscopic Findings: Endoscopic examination revealed ulcers in 50.76% of patients, proliferative growth in 23.07%, erythematous appearance in 19.23% and polypoidal/Mass & stricture findings are relatively rare 3.84% and 3.07% cases respectively [Table 7].

Histopathological findings of the esophageal lesion: A total of 80 cases were analyzed from esophagus, with the lower third of the esophagus accounting for the majority of cases (36 cases), followed by the middle third (20 cases), upper third (20 cases), and the gastroesophageal junction (4 cases). Barrett's esophagus was predominantly observed in the lower third of the esophagus, with 23 cases, while no cases were reported in the upper third, middle third, or gastroesophageal junction. Dysplasia was rare, with only one case reported in the upper third. Squamous cell carcinoma cases were observed across all regions, with 8 cases in total, showing varying degrees of differentiation (well-differentiated [WD], moderately differentiated [MD], and poorly differentiated [PD]). Adenocarcinoma cases were less frequent, with 2 cases in the lower third and 1 case at the gastroesophageal junction [Table 8].

Histopathological findings of the gastric lesions: A total of 41 cases of gastric biopsy were analyzed, with the antrum being the most frequently involved site (20 cases), followed by the pylorus (15 cases), body (6 cases). Gastritis was the most common diagnosis, with 17 cases distributed primarily in the antrum (6 cases) and pylorus (9 cases). Dysplasia was rare, with only 3 cases reported, all in the antrum and pylorus. A single case of a polyp was identified in the body. Malignancies were primarily concentrated in the antrum and pylorus. Adenocarcinoma cases were observed in both regions, with 5 cases in total, showing varying degrees of differentiation (well-differentiated [WD], moderately differentiated [MD], and poorly differentiated [PD]). Signet ring adenocarcinoma was reported in 4 cases, predominantly in the pylorus (3 cases). Non-Hodgkin lymphoma was rare, with only 1 case reported in the antrum [Table 9].

Histopathological findings of the duodenal lesions: Non-Specific Duodenitis dominated the histopathological findings in the first part of the duodenum, suggesting that inflammatory conditions are the most prevalent in this segment. Adenocarcinoma, though rare (1 case), indicates the presence of malignant lesions in the duodenum, albeit at a low frequency. Other conditions like Duodenal Ulcer, Coeliac Sprue, and Polyps were equally rare, each representing a small fraction of the total cases [Table 10].

Correlation Between Endoscopic and Histopathological Findings: Neoplastic conditions were predominantly associated with ulcerative and proliferative findings. Squamous cell carcinoma and adenocarcinoma were the most frequent malignancies, with 15 and 19 cases respectively, primarily observed in ulcerative and proliferative lesions. Signet ring adenocarcinoma and Non-Hodgkin lymphoma were rare, with only 2 and 1 case respectively, both linked to proliferative and polypoidal findings. Dysplasia was observed in 4 cases, mostly in ulcerative lesions.

Non-neoplastic conditions were more common in ulcerative findings and salmon-colored mucosa. Gastritis was the most frequent non-neoplastic diagnosis, with 17 cases, all associated with ulcerative findings. Barrett's esophagus was exclusively linked to salmon-colored mucosa, with 23 cases. Polyps were rare, with 2 cases in polypoidal

findings, and non-specific duodenitis was observed in 5 cases, all in ulcerative findings. Cases classified as "Negative for Malignancy" were distributed across ulcerative, proliferative, and stricture findings, totaling 39 cases [Table 11].

Analysis of endoscopic findings versus nature of lesions: The analysis of the data reveals significant differences in the distribution of certain features between benign and malignant cases. Specifically, proliferative and erythematous appearance show statistically significant associations with malignancy and benign lesion respectively, as indicated by their p-values ($p < 0.0001$, and $p < 0.0001$, respectively). A proliferative feature on endoscopy is more prevalent in malignant cases compared to benign ones, suggesting it may serve as important diagnostic markers. Overall, the findings highlight the potential utility of ulcerative, proliferative, and erythematous appearance in distinguishing between benign and malignant condition [Table 12].

Table 1: Age Distribution

Age (years)	Frequency	Percentage (%)
0-9	01	0.76
10-19	08	6.15
20-29	11	8.46
30-39	20	15.38
40-49	39	30
50-59	25	19.23
60-69	18	13.84
70-79	07	5.38
80-89	01	0.76
Total	130	100

Table 2: Showing Gender Distribution

Gender	Frequency	Percentage (%)
Male	86	66.15
Female	44	33.85
Total	130	100

Table 3: Presenting Symptoms and Clinical Indications for Endoscopy

Symptoms	Frequency	Percentage (%)
Dyspepsia	92	70.77
Dysphagia	83	63.85
Burning sensation	61	46.92
Loss of appetite	42	32.31
Epigastric pain	32	24.62
Loss of weight	30	23.08
Total	130	100

Table 4: Site wise distribution of endoscopic biopsies

	Number	Percentage (%)
Esophagus	80	61.54
Stomach	41	30.54
Duodenum	09	06.92
Total	130	100

Table 5: Nature of Lesion

	Non-neoplastic	Neoplastic	Total
Esophagus	54	26	80
Stomach	23	18	41
Duodenum	08	01	09
Total	85	45	130
Percentage	65.39 %	34.61 %	100 %

Table 6: Showing analysis of variables versus nature of lesions

Variable	Subgroup	Benign		Malignant		P-value
		N=85	%	N=45	%	
Age						
	<50	62	72.9	02	4.5	<0.0001
	≥50	23	27.1	43	95.5	
Gender						
	Male	56	65.9	30	66.7	0.9747
	Female	29	34.1	15	33.3	
Site of lesion						
	Esophagus	54	63.5	26	57.8	0.1394
	Stomach	23	27	18	40	
	Duodenum	08	9.5	01	2.2	

Table 7: Endoscopic Findings

Endoscopic findings	Number	Percentage (%)
Ulcerative	66	50.76
Proliferative	30	23.07
Erythematous appearance	25	19.23
Polypoidal mass	05	03.85
Stricture	04	03.08
Total	130	100

Table 8: Distribution of Histopathological Diagnoses Across Different Segments of the Esophagus

Site	Histopathological diagnosis										Total
	Barrets esophagus	Dysplasia	Negative for malignancy	SCC			ADC			CA ADC	
				WD	MD	PD	WD	MD	PD		
Upper Third	00	01	14	02	02	01	00	00	00	00	20
Middle Third	00	00	12	04	03	01	00	00	00	00	20
Lower Third	23	00	05	02	02	00	01	02	01	00	36
GE Junction	00	00	00	00	01	00	01	01	01	00	04
Total	23	01	31	08	08	02	02	03	02	00	80

Table 9: Distribution Of Histopathological Diagnoses Across Different Segments Of The Stomach

	Gastritis	Negative for malignancy	Dysplasia	Polyp	ADC			ADC signet ring	NHL	Total
					WD	MD	PD			
Cardia	00	00	00	00	00	00	00	00	00	00
Fundus	00	00	00	00	00	00	00	00	00	00
Body	02	03	00	01	00	00	00	00	00	06
Antrum	06	02	02	00	03	03	01	02	01	20
Pylorus	09	00	01	00	02	00	03	00	00	15
Total	17	5	3	1	05	03	04	02	01	41

Table 10: Distribution of Histopathological Diagnoses Across Different Segments of the Duodenum

	Histopathology						Total (%)
	Nonspecific duodenitis	Duodenal ulcer	Coeliac sprue	Polyps	Nonspecific pathology	Adenocarcinoma	
Total	05	01	01	01	00	01	09

Table 11: Correlation Between Endoscopic and Histopathological Findings

S. No.	Endoscopic findings	Neoplastic						Non-neoplastic					
		SCC	ADC	SRA	NHL	Dysplasia	Total	GASTRITIS	Barret, S Esophagus	Polyp	Nonspecific duodenitis	Negative for malignancy	Total
1.	Ulcerative	02	07	00	00	03	12	15	00	00	05	35	55
2.	Proliferative	13	12	02	00	01	28	00	00	00	00	02	02
3.	Salmon coloured Mucosa	00	00	00	00	00	00	02	23	00	00	00	25
4.	Polypoidal	01	00	00	01	00	02	00	00	02	00	01	03
5.	Stricture	02	01	00	00	00	03	00	00	00	00	01	01
	Total	18	20	02	01	04	45	17	23	02	05	39	85

Table 12: Showing analysis of endoscopic findings versus nature of lesions

	No. (=130)	Benign		Malignant		p-VALUE
		N	%	N	%	
Ulcerative	66	54	81.8	12	18.2	0.0013
Prolifertive	30	02	6.66	28	93.4	<0.0001
Erythematous appearance	25	25	100	00	00	<0.0001
Polypoidal	0	03	60.	02	40	0.79
Stricture	04	01	25	03	75	0.11

Table 13: Showing comparison with other studies

Diagnosis	Current study findings	Patel et al.	Lee et al.	Zhang et al.
Gastritis	Pylorus > Antrum	Antrum > Pylorus	Antrum > Body	Antrum > Pylorus
Negative for Malignancy	Body > Antrum	Body > Antrum	Body > Antrum	No specific predominance
Dysplasia	Antrum >Pylorus	Antrum > Pylorus	Antrum	Antrum > Pylorus
Polyp	Body	Body > Fundus	Body	Rare, no specific region
Adenocarcinoma	Antrum > Pylorus	Antrum > Pylorus	Antrum > Pylorus	Antrum > Pylorus
Signet Ring Adenocarcinoma	Antrum	Antrum > Body	Antrum > Body	Antrum
Non-Hodgkin Lymphoma	Antrum	Antrum	Antrum	Antrum

1. **H. Pylori Associated Gastritis**

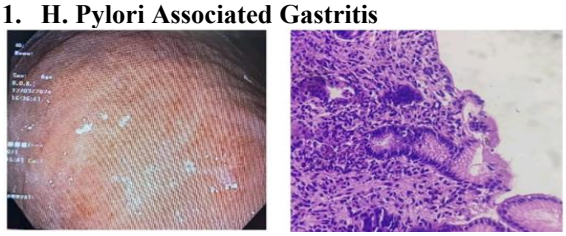

Figure 1: 1-Endoscopic Image Showing Ulcerations in Body of Stomach. 2-Microphotograph Showing Normal Looking Gastric Glands with Stroma with Chronic Inflammatory Cell Infiltrate (H&E 400x)

2. **Moderately differentiated squamous cell CA of ESOPHAGUS**

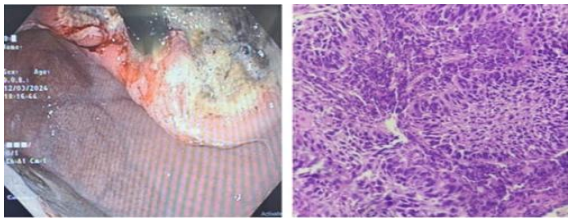

Figure 2: 1-Endoscopic image showing ulcero-proliferative growth in middle esophagus. 2-microphotograph showing neoplastic cells arranged in sheets with isonucleosis (H&E 400x)

3. **Adenocarcinoma of stomach**

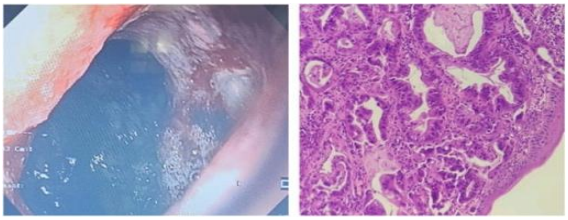

Figure 3: 1-Endoscopic image showing ulcerated growth in the body of stomach. 2-microphotograph showing tumor cells arranged in glandular architecture along with some singly lying cells (H&E 100x)

4. **Adenocarcinoma of duodenum (first part)**

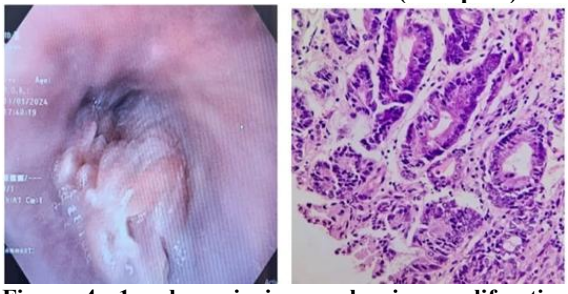

Figure 4: 1-endoscopic image showing proliferative growth in first part of duodenum. 2-microphotograph showing neoplastic epithelial cells arranged in glndular architecture with high n:c ratio and hyperchromatism (H&E 400x)

DISCUSSION

Age group: In the current study, the average age of patients was 48.2±17.11years, with the majority (over 50%) falling in the 40-69 age range. The 50-59 age group had the highest frequency (26 patients, 20%), followed by the 60-69 age group (25 patients, 19.23%). The youngest age group (10-19 years) had the lowest frequency (4 patients, 3.08%). Zhang et al,[9] study on upper GI endoscopic biopsies found that the majority of patients were in the 40-70 age range, with a peak in the 50-60 age group. The findings align closely with our study, confirming that upper GI lesions are more common in middle-aged and older adults. Study by Patel et al,[2] reported a similar age distribution, with the highest frequency of upper GI lesions in the 50-69 age group. The study also noted a low prevalence in individuals under 20 years, consistent with your findings. In study by Kumar et al,[3] the average age of patients with upper GI lesions was 49.5 years, which is very close to our study's average of 48.2 years. This further supports the notion that upper GI lesions predominantly affect individuals in their late 40s to early 50s. Study by Lee et al6 found that only 2-3% of upper GI lesions occurred in patients under 20 years, similar to our study's finding of 3.08%. The study attributed this to the lower incidence of risk factors like Helicobacter pylori infection, smoking, and alcohol consumption in younger populations. Study by Smith et al,[7] observed a slight decline in the frequency of upper GI lesions in patients over 70 years, similar to our study's findings. This could be due to a combination of factors, including reduced endoscopic screening in older populations, competing health conditions, or lower survival rates for advanced GI cancers. The low frequency in younger individuals and the slight decline in older populations are also consistent with global trends. These findings underscore the importance of age-specific diagnostic and management strategies for upper GI lesions, with a focus on early detection and intervention in high-risk groups.

Gender Distribution: The male predominance in our study (66.15% males vs. 33.85% females) is consistent with findings from other similar studies like Zhang et al,[4] Patel et al,[2] and Kumar et al,[3] which report male-to-female ratios ranging from 62:38 to 68:32. This gender disparity is likely due to a combination of lifestyle factors, biological differences, and healthcare seeking behaviors.

The presenting symptoms in our study, particularly dyspepsia (70.77%) and dysphagia (63.85%), are consistent with findings from other similar studies like Zhang et al,[4] study where dyspepsia was the most common symptom, affecting 68% of patients and dysphagia was reported in 60% of cases. Similarly studies by Patel et al,[2] and Kumar et al,[3] reported dyspepsia in 72% and 75% of patients respectively. These findings highlight the importance of symptom-based triage and timely endoscopic evaluation to ensure accurate diagnosis and effective management of upper GI disorders.

Site of involvement: Our study, like most, reported esophagus as the most frequently involved site, with proportions ranging from 58% to 65% and duodenum being the least involved. Contradictory studies by Lee et al and Smith et al,[6,7] reported a lower prevalence of esophageal biopsies (40-50%), likely due to differences in the study population or risk factors. These variations highlight the importance of considering local epidemiological data and risk factors when interpreting endoscopic findings and planning management strategies. Early detection and appropriate treatment of upper GI lesions can significantly improve patient outcomes.

Nature of Lesion: In the current study, both neoplastic (57.77%) and non neoplastic (63.52%) lesions were most common in the Esophagus. The Stomach shows a relatively balanced distribution between neoplastic (40.0%) and nonneoplastic (27.05%) lesions. Findings of Zhang et al,[4] study closely align with our results, particularly the high prevalence of neoplastic lesions (78%) in the esophagus and the dominance of non-neoplastic (85%) lesions in the duodenum. Patel et al,[2] also supports our findings, highlighting the consistent distribution of neoplastic and non-neoplastic lesions across the upper GI tract. In our study, non-neoplastic lesions were predominant (65.39%), like in Lee et al6 study, non-neoplastic lesions were more common (65%). Our findings on the presence of neoplastic lesions in the duodenum, although less common, resonate with the work of Afzal et al,[8] underscoring the morphological spectrum of gastric lesions and the importance of endoscopic biopsy in identifying neoplastic conditions.

Type of lesion: In the current study, ulcers are present in 50.76% of patients, proliferative growth in 23.07%, erythematous appearance in 19.23% and polypoidal mass and stricture findings were relatively rare 3.84% and 3.07% respectively. Similarly in study by Zhang et al,[4] ulcerative lesions were the most common (50% vs. 50.76%) and strictures being the least common (5% vs. 3.07%) but proliferative lesions were slightly lower in current study than Zhang et al,[4] study (30% vs. 23.07%), while polypoidal/mass lesions were higher (15% vs. 3.84%) in comparison to current study. On the contrary, Lee et al,[6] reported a higher prevalence of proliferative lesions (40% vs. 23.07%) and a lower prevalence of ulcerative lesions (40% vs. 50.76%).

On comparing lesions of esophagus histopathologically, Patel and Zhang et al,[2,4] had findings very close to our study, with SCC being the most common diagnosis and adenocarcinoma being less common in esophagus but proportion of adenocarcinoma was similar in Zhang et al,[4] study (20% vs. 26.92% in our study) and Patel et al,[2] (25% vs. 26.92% in our study). On the contrary a study by Lee et al6 reports a higher proportion of adenocarcinoma (40% vs. 26.92% in our study) and a lower proportion of SCC (50% vs. 69.23% in our study). The study population may have had a higher prevalence of GERD and Barrett's esophagus, leading to more cases of adenocarcinoma.

Histopathological Findings In Stomach: On comparing lesions of stomach histopathologically, current study data showed that gastritis cases were distributed across the body (2 cases), antrum (6 cases), and pylorus (9 cases). Unlike current study by Rani et al,[9] found that the stomach was the most common site for lesions, comprising 46% of cases, with Helicobacter pylori gastritis accounting for 9% of these. In another study by Correa et al,[10] described the progression of gastritis to gastric cancer, with the pylorus being a common site for inflammation. Zhang et al,[4] likely reported similar findings, with gastritis predominantly in the antrum and pylorus. While Lee et al,[13] have found gastritis more common in the antrum and body. In current study only 1 case of NHL in the antrum. Patel et al,[2] likely reported gastric lymphoma as rare, with a slight predominance in the antrum as shown in table below; [Table 13]

Histopathological Findings In Duodenum: On comparing lesions of duodenum histopathologically, in current study non-specific duodenitis is the most common (5 cases). Non-Specific Duodenitis, characterized by chronic inflammation of the duodenal mucosa without a specific underlying cause, has been widely reported as a common finding in duodenal biopsies. A study by Kreuning J et al,[11] found that chronic nonspecific duodenitis was present in 12% of healthy volunteers and up to 83% of patients with non-ulcer dyspepsia, suggesting that it is a frequent histopathological diagnosis in both symptomatic and asymptomatic individuals. This supports the observation that inflammatory conditions dominate duodenal pathology, particularly in the first part of the duodenum. The rarity of Adenocarcinoma in the duodenum, as observed in the study (1 case), is consistent with global epidemiological data. Duodenal adenocarcinoma is an uncommon malignancy, accounting for less than 1% of all gastrointestinal cancers. The low frequency of adenocarcinoma in the duodenum contrasts with its higher prevalence in the stomach and colon, likely due to differences in mucosal exposure to carcinogens and the protective role of duodenal secretions.

Correlation Between Endoscopic And Histopathological Findings: On correlating between endoscopic and histopathological findings,

like other studies we have reported that ulcerative lesions are often associated with non neoplastic lesions (81.8%), particularly gastritis. In the current study ulcerative findings turned out to be 12 neoplastic cases. A study by Zhang et al,[4] found that ulcerative lesions in the gastrointestinal tract had a 70% likelihood of being malignant, which is in contrast with the high non neoplastic (81.8%) correlation with the ulcers observed in this study. Proliferative lesions are often indicative of advanced neoplastic changes (93.4% in current study). Studies by Kim et al,[12] have also shown that proliferative endoscopic findings are strongly associated with adenocarcinoma and squamous cell carcinoma, which is consistent with the 28 neoplastic cases observed in current study. Polypoidal findings are often associated with benign conditions like polyps, but they can also indicate malignancies. A study by Lee et al,[6] reported that 20% of polypoidal lesions were malignant, which is lower than the 40% malignancy rate observed in this study (03 non-neoplastic vs. 02 neoplastic cases). This discrepancy may be due to differences in patient populations or diagnostic criteria. Strictures are less common but are often associated with malignancies. A study by Wang et al,[13] found that strictures in the gastrointestinal tract were malignant in 80% of cases, which is consistent with the 3(75%) neoplastic cases observed in our study. The presence of rare neoplasms like Brunner gland adenoma and non-Hodgkin lymphoma in polypoidal findings is consistent with literature, as these conditions are often detected incidentally during endoscopy.

CONCLUSION

The present study undermines the importance of integrating endoscopic and histopathological evaluations for accurate diagnosis and management of upper GI lesions. The high prevalence of neoplastic conditions, particularly in the esophagus and stomach, highlights the need for early detection and intervention. The findings also emphasize the diagnostic significance of proliferative lesions, which are strongly associated with malignancies. Further investigating the correlation between biomarker expression and clinical outcomes (e.g., survival, response to therapy) could enhance their prognostic utility. Integrating biomarker analysis with molecular profiling (e.g., next-generation sequencing) may provide deeper insights into the pathogenesis of upper GI neoplasms and identify potential therapeutic targets.

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