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HISTOLOGIC EVALUATION OF ENDOSCOPIC BIOPSIES IN UPPER GASTROINTESTINAL LESIONS – A CORRELATIVE STUDY.

Pathology

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ABSTRACT

Background: Upper gastrointestinal lesions constitute major cause of morbidity and mortality in clinical medicine. Recurrent upper gastrointestinal symptoms often requires a diagnostic endoscopy, mucosal biopsy and subsequent histopathological assessment. Management depends on histopathological diagnosis whether inflammatory, infective or tumors. **Aims And Objectives:** To analyse the clinicopathological features of esophageal, gastric and upper duodenal lesions. To correlate the endoscopic findings with histopathologic diagnosis of upper gastrointestinal mucosal biopsies. **Materials And Methods:** The present study is a prospective study done in the department of Pathology at a tertiary care hospital. A total of 250 cases were evaluated over a period of 5 months from January to May 2023.Based on clinical findings, upper GI endoscopy done by flexible endoscope followed by representative biopsy and histopathologic examination. **Results:** The present study showed male predominance with majority of cases in the age group of 41-50 years. Most common clinical presentation was vomiting followed by pain abdomen. Gastric lesions constituited majority of cases (46%) followed by duodenal (42%) and esophageal lesions (12%). Most common endoscopic diagnosis was growth, ulcer and erythema in esophageal, gastric and duodenal lesions respectively. Most common histopathologic diagnosis was nonspecific esophagitis, nonspecific gastritis and nonspecific duodenitis. **Conclusion:** Endoscopy of Upper gastrointestinal lesions followed by histopathologic examination of biopsies is an essential component of management as early diagnosis and prompt treatment is done depending on whether the lesion is inflammatory or dysplasia or tumor.

KEYWORDS

Upper Gastrointestinal Lesions, Endoscopy, Histopathologic Diagnosis.

INTRODUCTION

Upper gastrointestinal lesions involving esophagus, stomach, part of duodenum constitute a major cause of morbidity and mortality in clinical medicine. Majority of cases present with symptoms like pain abdomen, dyspepsia, vomitings and dysphagia. Lesions may vary from inflammatory which are easily treatable to neoplastic which carries high mortality and hence the need for early diagnosis and treatment. Endoscopy followed by representative biopsy of suspicious site and histopathologic examination aids in early diagnosis and management of cases. Endoscopic biopsies are performed not only for the diagnosis of the disease but also for monitoring its course, determining its extent, responses to therapy and for early detection of complications.[1]

Non-neoplastic lesions of upper gastrointestinal tract are easily treatable while neoplastic lesions present late with insidious onset of symptoms like dyspepsia and dysphagia. Esophageal and gastric malignancies carry a high risk of mortality due to late presentation and at advanced stage. The estimated proportion of stomach cancer is 4.8% in males and 2.4% in females in India. Also the estimated proportion of esophageal cancer in males is 4.8% and 2.8% in females (2022).[2]

The upper gastrointestinal flexible fiber optic endoscope first used in 1968 provides a visual examination of the upper gastrointestinal tract using a flexible fiber optic or video endoscope. It allows for easy inspection of GIT without any gaps and is a major breakthrough in the diagnosis of gastrointestinal tract lesions. Endoscopic guided biopsy is an established diagnostic tool and is the current gold standard investigation for patients with upper GIT symptoms.[3]

AIMS AND OBJECTIVES

1. To analyse the clinicopathologic features of upper gastrointestinal lesions.
2. To correlate endoscopic findings of upper gastrointestinal lesions with histopathologic diagnosis.

MATERIALS AND METHODS

The present study is a cross sectional study done over a period of five months from January to May 2023 in the Department of Pathology, Osmania Medical College, Hyderabad. A total of 250 cases were studied. Age, sex-wise distribution, clinical presentation, endoscopy findings and histologic diagnosis of upper gastrointestinal mucosal biopsies were analysed. The collected data was represented by percentages, bar graphs and tabular forms.

Inclusion Criteria

Relevant clinical details with endoscopy findings and representative mucosal tissue biopsy of esophagus, gastric and duodenal biopsies of all age and sex were included in the study.

Exclusion Criteria

Inadequate tissue biopsies are excluded from the study.

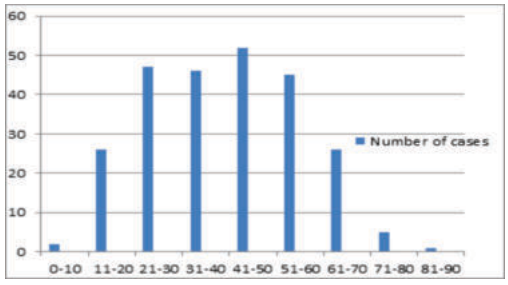
RESULTS

A total of 250 cases of upper gastrointestinal lesions are studied in the present study. Analysis of clinicopathologic features, endoscopic findings and histologic diagnosis are represented below.

Table 1: Demographic Details

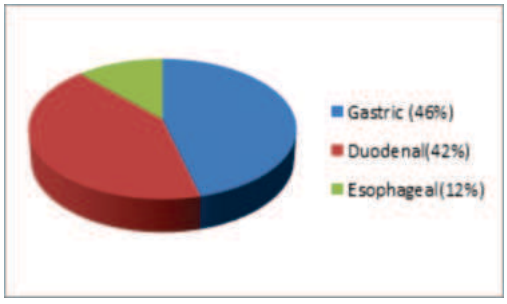
Total number of cases	250
Males	152(60.8%)
Females	98(39.2%)
Male: Female Ratio	1.5:1
Age Range	9-82 years
Mean Age	45.5 years

Of the total 250 cases studied, male predominance was observed with 152 cases of males (60.8%) and 98 cases of females (39.2%). Male: female ratio of 1.5:1. Age range observed was 9 to 82 years with mean age of 45.5 years.



Bar Graph 1: Age Range and Distribution of Cases

The above bar graph shows the predominant number of cases presented in the age range of 41-50 years constituting 52 cases (20.8%) followed by 21-30 years of 47 cases (18.8%).



PIE CHART 1: Distribution of Cases according to Site

Gastric biopsies were predominant cases constituting 115 cases (46%) followed by 105 cases of duodenal lesions (42%) and 30 cases of esophageal lesions (12%) in the present study.

Table 2: Distribution of Cases based on Histologic Diagnosis of Esophageal Lesions

Lesions	Histologic Diagnosis	Number of Cases (Percentage)
Normal study	Normal	02(6.6%)
Non-neoplastic	Barrett's Esophagitis	02(6.6%)
	Dysplasia	07(23.3%)
	Reflux esophagitis	12(40%)
Neoplastic	Adenocarcinoma	01(3.3%)
	Squamous cell carcinoma	06(20%)
Total		30(100%)

Table 3: Correlation of Endoscopy and Histologic Findings of Esophageal Lesions

Endoscopic Findings	Histologic Findings					Total (%)
	Normal	Barrett's Esophagitis	Reflux Esophagitis	Dysplasia	Carcinoma	
Normal	02	0	0	0	0	02 (6.6%)
Erythema	0	01	12	02	0	15 (50.0%)
Nodule	0	01	0	03	01	05 (16.6%)
Growth	0	0	0	02	06	08 (26.6%)
Total	02	02	12	07	07	30 (100%)

Of the total 30 esophageal biopsies the predominant non-neoplastic lesion was reflux esophagitis (40%) and neoplastic lesion was squamous cell carcinoma (20%) on histopathology which on endoscopy correlated with erythema and growth respectively.

Table 4: Distribution of Cases based on Histologic Diagnosis of Gastric Lesions

Lesions	Histologic Diagnosis	Number of Cases (Percentage)
Non-neoplastic	Atrophic Gastritis	03(2.6%)
	Chronic ulcer	05(4.3%)
	Hyperplastic Polyp	16(13.9%)
	Chronic Nonspecific Gastritis	67(58.2%)
	Dysplasia	03(2.6%)
Neoplastic	Adenocarcinoma	20(17.3%)
	Non Hodgkin Lymphoma	01(0.8%)
Total		115 (100%)

Table 5: Correlation of Endoscopy and Histologic Findings of Gastric Lesions

Endoscopic Findings	Histologic Findings							Total (%)
	Normal	Atrophic gastritis	Chronic ulcer	Hyperplastic Polyp	Chronic Nonspecific Gastritis	Dysplasia	Malignant	
Normal	0	0	0	0	0	0	0	0
Atrophy	0	02	0	0	0	0	0	02(1.7%)
Erosion	0	0	03	0	10	0	0	13(11.3%)
Erythema	0	01	02	0	57	02	0	62(53.9%)
Nodule	0	0	0	04	0	0	01	05(4.3%)
Polyp	0	0	0	12	0	0	0	12(10.4%)
Growth	0	0	0	0	0	01	20	21(18.2%)
Total	0	03	05	16	67	03	21	115(100%)

Of the total 115 gastric lesions, the predominant non-neoplastic lesion was chronic nonspecific gastritis (58.2%) which on endoscopy correlated with erythema. The predominant neoplastic lesion was adenocarcinoma (20%) on histopathology which on endoscopy correlated with a growth.

Table 6: Distribution of Cases based on Histologic Diagnosis of duodenal Lesions

Lesions	Histologic Diagnosis	Number of Cases (Percentage)
Normal study	Normal	01(0.95%)
Non-neoplastic	Coeliac Disease	01(0.95%)
	Brunner gland hyperplasia	12(11.4%)
	Non-specific duodenitis	85(81%)
Neoplastic	Adenocarcinoma	04(3.8%)
	Carcinoid	01(0.95%)
	GIST	01(0.95%)
Total		105(100%)

Table 7: Correlation of Endoscopy and Histologic Findings of Duodenal Lesions

Endoscopic Findings	Histologic Findings							Total (%)
	Normal	Coeliac Disease	Brunner gland hyperplasia	Non-specific Duodenitis	Carcinoid	GIST	Carcinoma	
Normal	01	01	0	03	0	0	0	05 (4.7%)
Erythema	0	0	0	79	0	0	0	79 (75.2%)
Nodule	0	0	03	02	01	01	0	07 (6.6%)
Polyp	0	0	09	01	0	0	0	10 (9.5%)
Growth	0	0	0	0	0	0	04	04 (3.8%)
Total	01	01	12	85	0	0	04	105 (100%)

Of the total 105 duodenal lesions, the predominant non-neoplastic lesion was nonspecific duodenitis (81%) which on endoscopy showed an erythematous appearance. The predominant neoplastic lesion was adenocarcinoma (3.8%) which presented as growth on endoscopy.

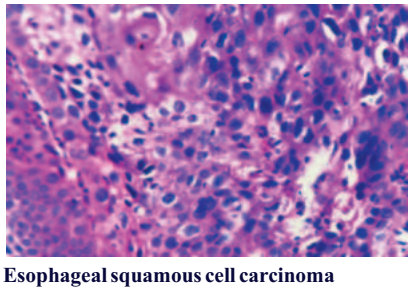


Figure 1 Esophageal squamous cell carcinoma

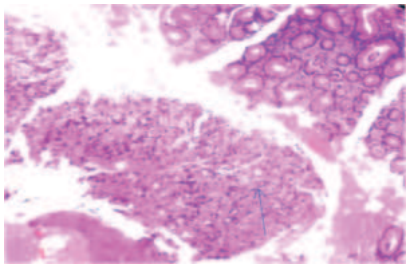


Figure 2 Gastric Adenocarcinoma (arrow)

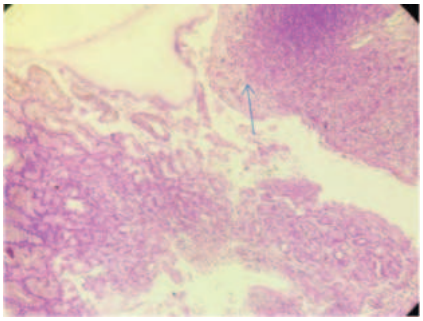


Figure 3 Duodenal GIST (arrow)

DISCUSSION

The present study conducted at a tertiary care hospital included 250 cases presenting with diverse upper gastrointestinal complaints to medicine department. Cases presenting with symptoms of chronic duration and unresponsive to medication were further evaluated by gastroenterologist. Following upper gastrointestinal endoscopy, tissue biopsy was taken and histopathological analysis done. The clinicopathologic features and correlation of endoscopic findings with histopathology were evaluated**.**

The present study showed a male predominance with a male to female ratio of 1.5:1. Similar finding was reported by study done by Deepa Rani et al[4] (2018).Male predominance may be related to exposure to alcohol, smoking and food habits. The predominant cases presented in the 5th decade of life which was comparable to study done by Deepa Rani et al[4] (2018) **.**The predominant clinical presentation was pain abdomen followed by dyspepsia, dysphagia, diarrhoea, vomiting and hematemesis**.** The predominant site of lesion was stomach followed by duodenum and esophagus.

In esophageal lesions the most common non neoplastic lesion was reflux esophagitis (12%) which on endoscopy showed an erythematous appearance. The predominant neoplastic lesion of esophagus was squamous cell carcinoma(6%) which on endoscopy showed a proliferative growth which was similar to study done by Ahamed et al[5](2022) .Other esophageal lesions included Barrett's esophagitis, dysplasia and adenocarcinoma.

In gastric lesions, the most common non neoplastic lesion was chronic nonspecific gastritis (67%) which on endoscopy showed an erythematous pattern. The predominant neoplastic lesion was adenocarcinoma(20%) which on endoscopy showed an ulcero proliferative growth pattern which correlated with study done by Sharma et al[6](2020). Other gastric lesions included atrophic gastritis, chronic ulcer, hyperplastic polyp, dysplasia and Non Hodgkin Lymphoma.

In duodenal lesions, nonneoplastic lesions (98%) were more compared to neoplastic (6%).Similar findings reported by studies done by Deepa Rani et al[4] and Jawalkar S et al[7].The predominant non-neoplastic lesion was nonspecific duodenitis (85%) which on endoscopy showed an erythematous appearance. The predominant neoplastic lesion was adenocarcinoma (4%) which on endoscopy showed a proliferative growth pattern. Other duodenal lesions included coeliac disease, Brunner gland hyperplasia, carcinoid and gastrointestinal stromal tumor (GIST).

CONCLUSION

Upper gastrointestinal lesions are diverse ranging from nonneoplastic to neoplastic. Cases presenting with longstanding upper gastrointestinal symptoms and unresponsive to medical treatment need endoscopy followed by representative site biopsy. Histopathological diagnosis serves as an early diagnostic tool in the management of upper gastrointestinal lesions.

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Conflicts of Interest: None

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