Indian Journal of Pathology: Research and Practice 8(1)Jan-Feb 2019
DOI: http://dx.doi.org/10.21088/ijprp.2278.148X.8119.5

IJPRP

Original Research Article

Title of the Paper: Histopathological Spectrum of Upper Gastrointestinal Endoscopic Biopsies: A Study of 150 Cases

Kumari Jyothi Vibhute[1], Divya Lakshmi[2]

[1]Assistant Professor, Department of Pathology, Khaja Banda Nawaz Institute of Medical Sciences, Gulbarga, Karnataka 585104, India [2]Assistant Professor, Department of Pathology, Oxford Medical College, Attibele, Bangalore, Karnataka 562107, India.

Corresponding Author:
Divya Lakshmi, Assistant Professor, Department of Pathology, Oxford Medical College, Attibele, Bangalore, Karnataka 562107, India.

E-mail: dldivya87@gmail.com

Received on 28.11.2018,

Accepted on 28.12.2018

Abstract

Background: Upper gastro intestinal (GI) endoscopy is an established mode of investigation and treatment of a wide range of upper gastro intestinal disorders, such as dysphasia, upper GI bleeding, persistent dyspepsia, heartburn, chronic acid reflux and in the surveillance of Barrett's esophagus, gastric ulcer and duodenal ulcer. Upper gastrointestinal tract is a common site for neoplasm's especially malignant tumors. Worldwide carcinoma stomach is the second most common cancer and carcinoma esophagus is the sixth leading cause of death.

Aims & Objectives: To analyze the histopathological spectrum of diseases in upper GI tract, estimate the incidence of H. Pylori associated chronic gastritis, incidence of malignancy and to correlate clinical features with histopathological diagnosis.

Materials and Methods: The present study was conducted in the Department of Pathology, MVJ Medical College and Research Institute, Hoskote over a period 2 years from September 2012 to August 2014. Total of 150 cases who underwent Upper GI Endoscopic Biopsy (esophageal, gastric, and duodenum (1st part) lesions) were studied.

Results: Out of the 150 upper GI endoscopic biopsies, 47 (31.3%) were from the esophagus, 95 (63.3%) from stomach and 8 (5.3%) from duodenum. There were 87 male patients and 63 female patients making the male: female ratio of 1.4:1. The highest number of biopsies was done in patients between 41 to 50 years (25.3%). Dysphagia (38.6%) is the commonest presentation with esophageal lesions. Dyspepsia (61.3%) & pain abdomen (38%) were the commonest presentation in patients with gastric lesions. Out of 47 esophageal biopsies 28 (59.2%) were squamous cell carcinoma followed by chronic esophagitis 7 (14.8%). Majority of cases of carcinoma esophagus were in the middle 1/3rd of the esophagus, histologically these proved to be squamous cell carcinoma & adenosquamous carcinoma. Only 2 cases of adenocarcinoma were obtained and these were in the lower 1/3rd of the esophagus. Out of 95 cases of gastric biopsies 79 (83.1%) were Chronic gastritis,

followed by 6 (6.25%) were tubular adenocarcinomas. Antrum was most common site of involvement. Among 79 cases of chronic gastritis 50 (63.2%) cases are positive for H pylori and 29 (36.7%) cases are negative for H pylori. Out of 8 cases of duodenal biopsies, chronic duodenitis was the comment lesion.

Conclusion: Endoscopic biopsy provides an excellent opportunity for the clinician and histopathologist to study the morphology of the lesion using minimal tissue obtained by an endoscope, also it obviates laparotomies and excision biopsies.

Keywords: Duodenum; Esophagus; Stomach; Upper gastrointestinal Endoscopic Biopsy.

How to cite this article:

Kumari Jyothi Vibhute, Divya Lakshmi. Histopathological Spectrum of Upper Gastrointestinal Endoscopic Biopsies: A Study of 150 Cases. Indian J Pathol Res Pract. 2019;8(1):32-42.

Introduction

The word "endoscopy" is derived from the Greek word by combining the prefix "endo" meaning "within" and the "skopein", "to view or observe" [1-11]. Upper GI endoscopy is the first line investigation in patients with dysphagia and dyspepsia. Dysphagia is a Greek word and means disordered eating. Dysphagia typically refers to difficulty in eating as a result of disruption in the swallowing process. Dyspepsia is characterized by epigastric pain or discomfort and may include heart burn, acid regurgitation, excessive burning/ belching, abdominal bloating, and feeling of abnormal or slow digestion, early satiety or nausea. In India, according to the national cancer registry, esophageal and gastric are the most commonly found cancer in men, while esophageal cancer ranks 3rd among women after carcinoma cervix.6 Therefore early detection of these malignancies will greatly improve survival rates and morbidity in these patients.

Materials and Methods

The present study was conducted in the Department of Pathology, MVJ Medical College and Research Institute, Hoskote over a period of 2 years from September 2012 to August 2014. All endoscopic biopsies from esophagus, stomach & duodenum with relevant clinical data from these patients were taken for the study. Inadequate biopsies & previously diagnosed cases who have undergone surgery for malignancy and have been treated by chemotherapy and radiotherapy were excluded from the study.

The patient details like age, sex, presenting complaints, clinical diagnosis and endoscopic findings were obtained from the requisition form that was sent along with biopsy samples. Upper GI endoscopic biopsy samples were received in 10% formalin in the pathology laboratory. While embedding care was taken to see that the mucosal surface was placed 90^0 to the cutting surface. Five µ thick sections were cut on a Leica microtome. Haematoxylin and Eosin staining was done on all biopsies. Giemsa stain was used to identify Helicobacter pylori organism. The combined Alcian blue (AB) Periodic Acid -Schiff (PAS) stain was performed to detect intestinal metaplasia.

Results

Out of the 150 upper GI endoscopic biopsy samples that were studied during the period of two years, 47 (31.3%) were from the esophagus, 95 (63.3%) from stomach and 8 (5.3%) from duodenum. (Table 1).

Table 1:

Site	No. of Cases	Percentage
Esophageal Biopsies	47	31.3%
Gastric Biopsies	95	63.3%
Duodenal Biopsies	08	5.3%

There were 87 male patients and 63 female patients making the male: female ratio of 1:4:1. The highest number of biopsies was done in patients between 41 to 50 years (25.3%) followed by 51-60 years (22%) and 31-40 years (18.6%). The oldest patient was 95 years and the youngest is 11 yrs. (Table 2).

Table 2:

Age in Years	Sex		Total	Percentage
	Male	Female		
11 – 20	2	1	3	2%
21 – 30	8	6	14	9.3%
31 – 40	17	11	28	18.6%
41 – 50	21	17	38	25.3%
51 – 60	21	12	33	22 %
61 – 70	11	11	22	14.6 %
71 – 80	3	3	6	4%
81- 90	3	2	5	3.3%
90-100	1		1	0.6%
Total	87	63	150	100.00%

Dysphagia (38.6%) is the commonest presentation with esophageal lesions. Dyspepsia (61.3%) & pain abdomen (38%) were the commonest presentation in patients with gastric lesions. Loss of weight was common to all the carcinomas. (Table 3)

Table 3:

Presenting Clinical Symptoms	Total Number of Cases	Percentage
Dyspepsia	125	83.3 %
Dysphagia	58	38.6%
Pain Abdomen	57	38 %
Loss of Weight	23	15.3%
Loss of Appetite	5	3.3 %
Vomiting	21	14.00%
Haematemesis	1	0.6 %
Anemia	6	4.%
Mass per abdomen	1	0.6 %

Total numbers of esophageal biopsies were 47 cases. In the present study, the commonly encountered esophageal lesion was squamous cell carcinoma (59.2%) followed by chronic esophagitis (14.8%) & adenosquamous carcinoma (6.3%). Most of the cases of squamous cell carcinoma were seen between 51-60 years of age (Table 4).

Majority of cases of carcinoma esophagus were in the middle 1/3rd of the esophagus, histologically these proved to be squamous cell carcinoma & adenosquamous carcinoma. Only 2 cases of adenocarcinoma were obtained and these were in the lower 1/3rd of the esophagus (Table 5).

Table 5:

Esophagus Site	Squamous cell carcinoma	Adenosquamous carcinoma	Adenocarcinoma	Total carcinomas
Upper third				
Middle third	19			22
Lower third	9		2	11
Total	28	3	2	33

Chronic gastritis (83.1%) was most common lesion seen in the age group of 31-50 years. Among malignancies tubular adenocarcinomas (6.25%) and signet ring carcinomas (4.2%) were commonly seen.

Table 4:

	No significant pathology	Chronic Esophagitis	Reflux esophagitis	Candida esophagitis	Barretts Esophagus	High grade dysplasia	Squamous cell carcinoma	Adenocarcinoma	Adenosquamous Carcinoma
11 – 20									
21 – 30									
31 – 40		3	1	1					
41 – 50					2	1	7		1
51 – 60	1	1					12	1	1
61 – 70		4					6		
71 – 80							2	1	
81-90							1		1
Total	1	7	2	1	2	1	28	2	3
%	2.1%	14.8%	4.2%	2.1%	4.2%	2.1%	59.5%	4.2%	6.3%

The former was common in the age group 41-50 & the latter was in the age group 31-40 years. (Table 6)

Among chronic gastritis 50 (63.2%) cases are positive for H pylori and 29 (36.7%) cases are negative for H pylori. (Table 7)

Tabel 7:

H- Pylori Positive	50	63.2 %
H- Pylori Negative	29	36.7 %
Total	79	100.0%

Tubular adenocarcinomas were seen in 6 (50%) cases out of which most of the cases showed moderate differentiation, followed by signet ring adenocarcinomas 4 (33.3%) cases. (Table 8).

Table 6:

Age in Years	Acute Gastritis	Chronic gastritis	Polyps	Tubular ADC	Papillary ADC	Signet ring ADC	Gastric lymphoma
11 - 20		2					
21 - 30	1	13					
31 - 40		19				2	
41 - 50	1	19	1	2		1	
51 - 60		15				1	1
61 - 70	1	6		2	1		
71 - 80		2		1			
81-90		3					
91-100				1			
Total	3	79	1	6	1	4	1
%	3.1 %	83.1%	1.05%	6.25%	1.05%	4.2 %	1.05%

Table 8:

Histological subtype	Well differentiated	Moderately differentiated	Poorly differentiated	Total	%
Tubular adenocarcinoma	2	3	1	6	50%
Papillary adenocarcinoma	1			1	8.3%
Signet ring adenocarcinoma			4	4	33.3%

Table 9:

Age in Years	Chronic Duodenitis	MAS- Celiac sprue	Strongyloidesstercoralis	Adenomatous Polyp	Periampullay Carcinoma	Well differentiated ADC	Duodenal carcinoid
11 - 20		1					
21 - 30							
31 - 40			1				
41 - 50	1					1	1
51 - 60				1	1		
61 - 70	1						
71 - 80							
Total	2	1	1	1	1	1	1
%ge	37.5 %	12.5%	12.5%	12.5 %	12. 5%	12.5%	12.5%

Among Duodenal biopsies most common lesion was chronic duodenitis seen in 2 cases (25 %). The distribution of other cases are as shown in table below (Table 9).

Out of total 150 cases 33 cases (22%) were esophageal malignancies, 12 cases (8%) were gastric malignancies and only 3 cases (2%) of duodenal malignancies. The overall incidence of malignancy in present study is 48 cases (32%) (Table 10).

Table 10:

Site	No. of cases	Percentage
Esophageal malignancies	33	22%
Gastric malignancies	12	8%
Duodenal malignancies	3	2 %

Discussion

Endoscopic biopsy is currently an important diagnostic method for gastrointestinal diseases [7]. Endoscopy screening detects upper GI lesions at an early stage especially atrophy, intestinal metaplasia and dysplasia and helps to prevent progress of these lesions to invasive cancer [8]. In the present study, endoscopy along with biopsy was done on patients presenting to the outpatient department & biopsies received at the department of pathology MVJ medical college, Hoskote , Bangalore.

Of the 150 consecutive biopsies in the present study 95 (63.3%) biopies were done from the stomach of these 69 (72.6 %) were from antral region indicating that chronic gastritis which commonly affects the antral region with or without associated H pylori was the commonest lesion in the present series, which was correlating with study conducted by Prem et al. [9], Hameed et al. [10], Qureshi et al. [5].

The present study shows highest number of upper GI endoscopic biopsies between 41-50 years of age similar to studies by Piyaporn et al. [11] & Nowshad et al. [12].

In the present study, the youngest patient was 11 years old and presented with chronic symptoms of steotorrhea due to gluten sensitive enteropathy.

Qureshi et al. [5] & Frank et al. [13]. Show the age group prepondance in upper GI biopsies between 50-60 years.

In the present series dyspepsia was the commonest presentation in 85% of patients with esophagitis/gastritis/duodenitis and in 83.3% of patients with carcinoma stomach. Dysphagia was the commonest presentation in 96.9% of patients with esophageal carcinoma. Pain abdomen was common among the histologically diagnosed gastritis/duodenitis. Loss of weight was common to all carcinomas. In the present study, dyspepsia, dysphagia and pain abdomen were the common clinical presentation at endoscopic biopsy, which was nearly correlating to Querishi et al. [5].

Esophagus

In the present study, the commonly encountered esophageal lesion in upper GI biopsies was squamous cell carcinoma (18.6%) followed by adenosquamous carcinoma (2%), Barrett's esophagus & adenocarcinoma constitued 1.3% each. The commonly encountered lesion in esophagus was malignancy in contrast to other studies which showed a predominance of inflammatory lesion.

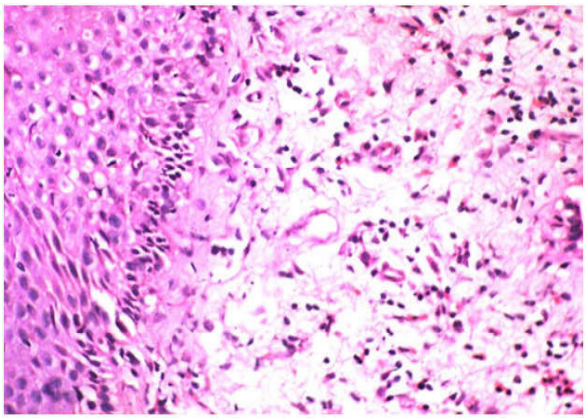

Fig. 1: *Esophagus:* Reflux oesophagitis showing inflammatory infiltrate consisting of eosinophils and neutrophils in the subepithelium & epithelium H&E X400

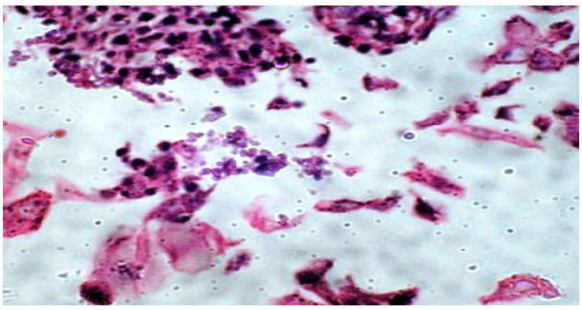

Fig. 2: *Esophagus:* Candidiasis H&E X400

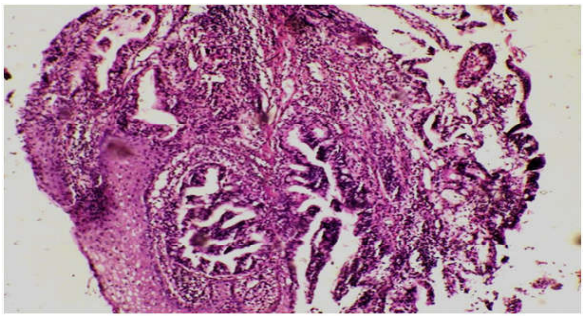

Fig. 3: *Esophagus:* Barrett's oesophagus H & E X100

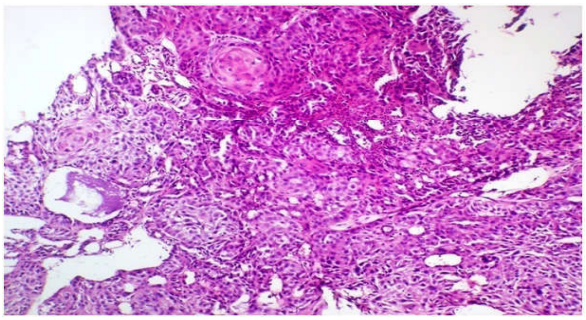

Fig. 4: *Esophagus:* Well differentiated squamous cell carcinoma H&E X 100

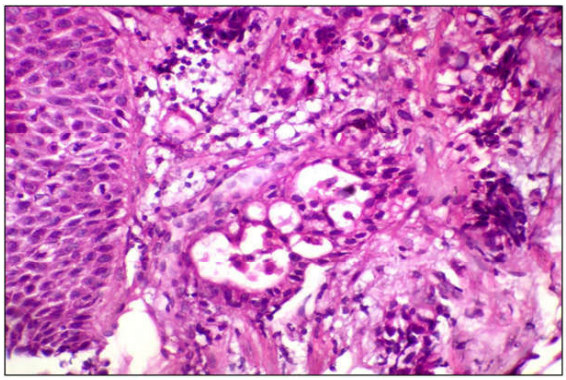

Fig. 5: *Esophagus:* Adenocarcinoma H & E X 400

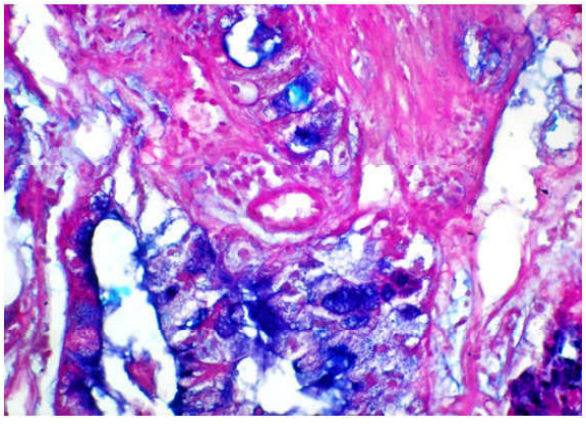

Fig. 6: *Esophagus:* adenocarcinoma demonstrating acid mucins combined AB/PAS X400

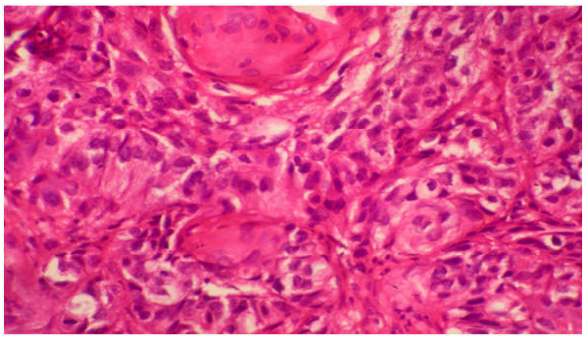

Fig. 7: *Esophagus:* Adenosqumaous carcinoma H & E X400

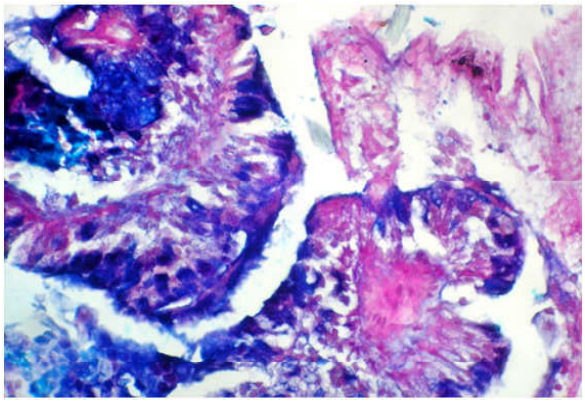

Fig. 8: *Esophagus:* Adenosqumaous carcinoma demostarting acid mucins combined AB/PAS X400

Stomach

In the present study the commonly encountered gastric lesions were non neoplastic lesions (gastritis 54.6%) like in most other studies see table below, followed by Intestinal metaplasia (considered to be pre malignant) in 11.3% of cases. Malignancy in 8% and benign neoplasm in 0.6% cases.

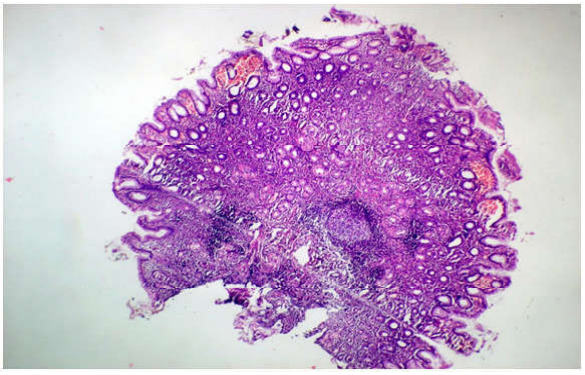

Fig. 9: *Stomach:* Chronic gastritis with follicle formation H&E X100

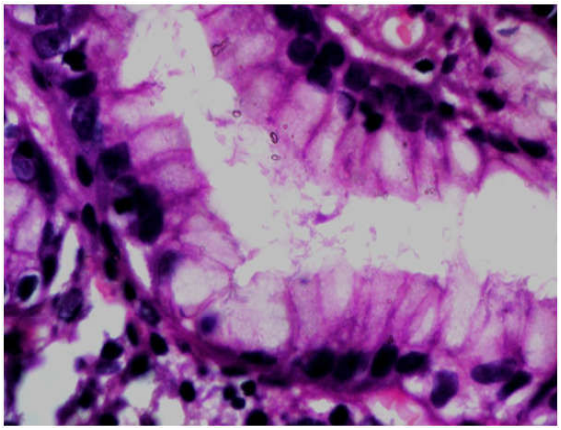

Fig. 10: *Stomach:* Chronic H. pylori gastritis H&E X1000

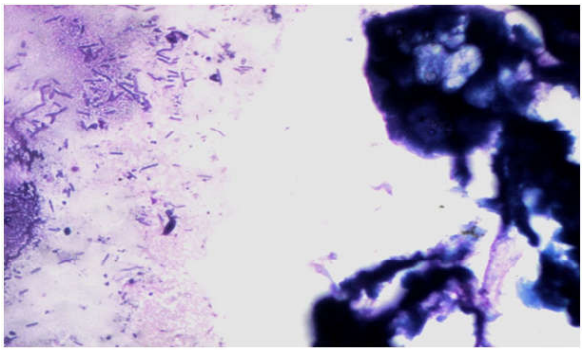

Fig. 11: *Stomach:* Chronic H. pylori gastritis giemsa stain X400

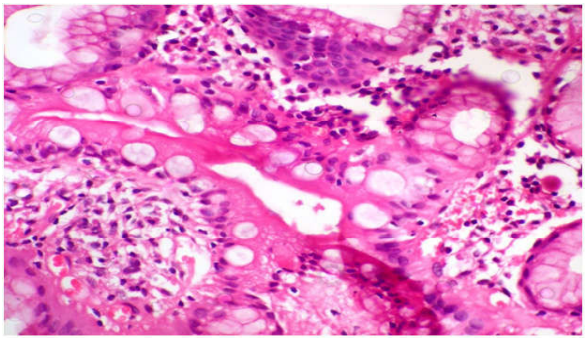

Fig. 12: *Stoamch:* Gastric intestinal metaplasia H & E X 400

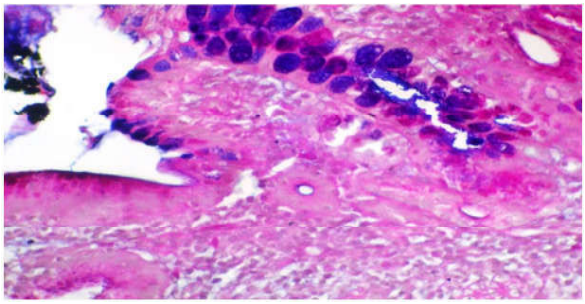

Fig. 13: *Stomach:* Gastric intestinal Metaplasia AB/PAS X 400 shows acid mucins

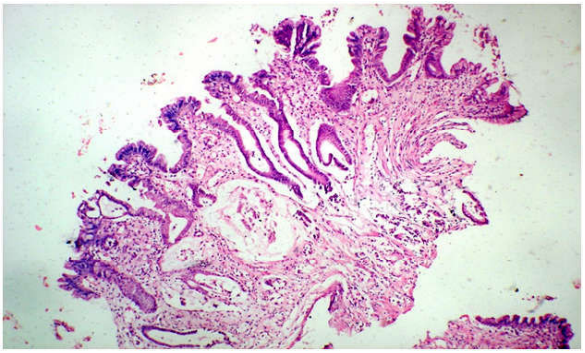

Fig. 14 : *Stomach:* Hyperplastic gastric polyp serrated mucosa with goblet cells H&E X100

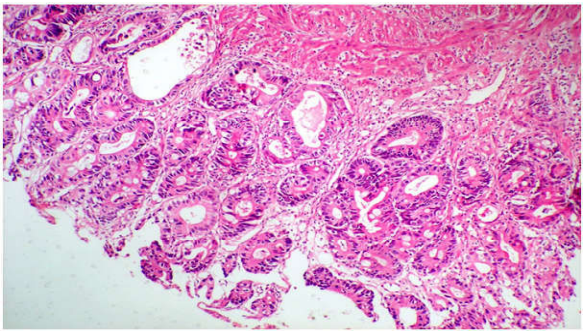

Fig. 15 : *Stomach:* Tubular adenocarcinoma well differentiated H & E X1oo

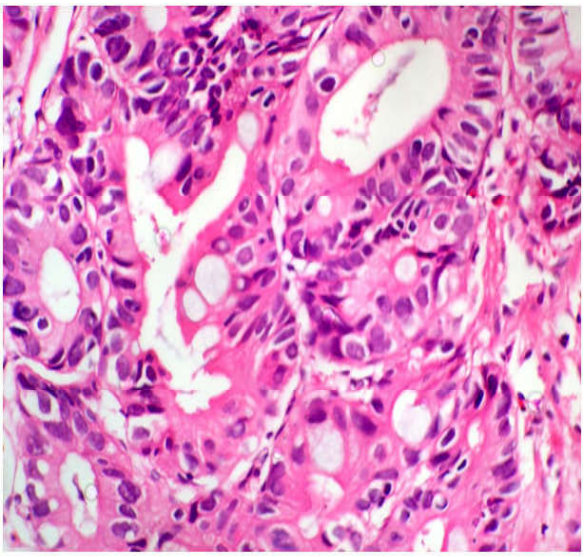

Fig. 16: *Stomach:* Tubular adenocarcinoma well differentiated H & E X400

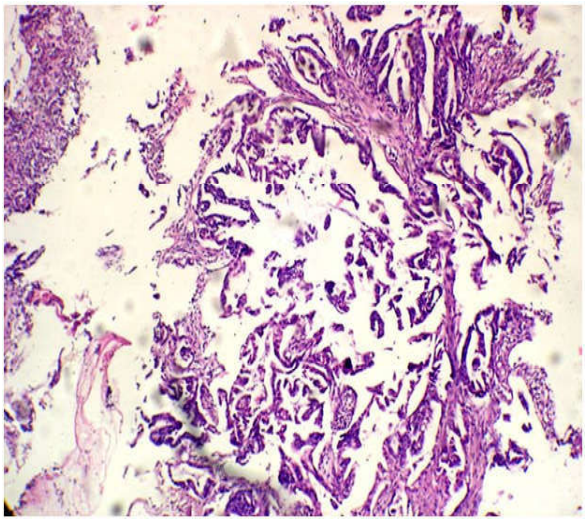

Fig. 17 : *Stomach:* Papillary adenocarcinoma stomach well differentiated H & E X100

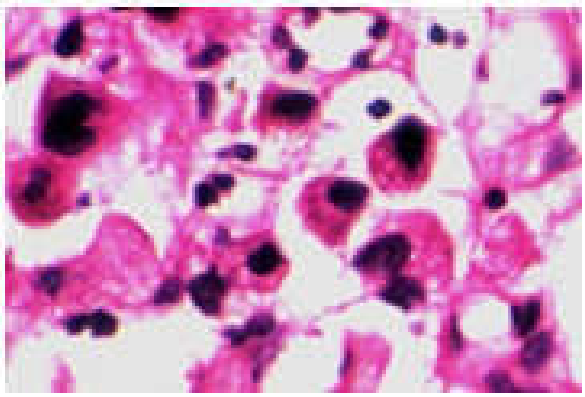

Fig. 18: *Stomach:* gastric carcinoma signet ring type H&E X 400

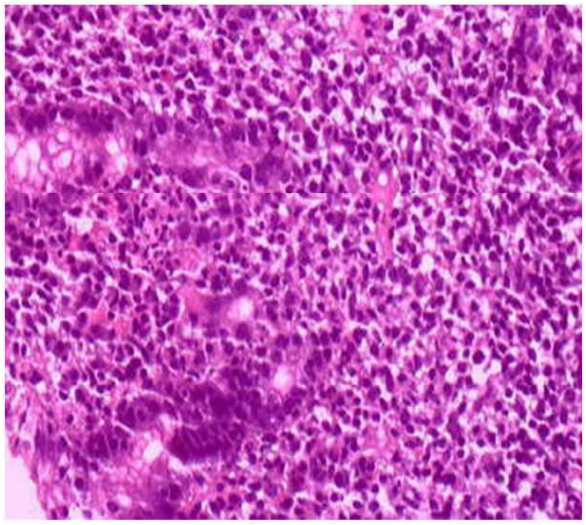

Fig. 19: *Stomach:* malt lymphoma H&E X 400

Duodenum

The distribution of lesions in duodenal biopsies was chronic duodenitis (1.3%), adenocarcinoma (1.3%), duodenal carcinoid (0.6%), malabsorption syndrome (0.6%), adenomatous polyp (0.6%) and infection with strongy loidesstercoralis (0.6%). The overall incidence of malabsorption syndrome in upper GI biopsies is 2.2%. In the present study it constitute 0.6%.

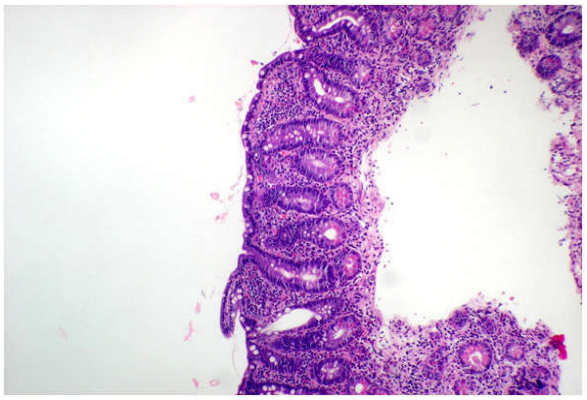

Fig. 20: *Duodenum:* Celiac sprue with grade iv villous atrophy H &Ex100

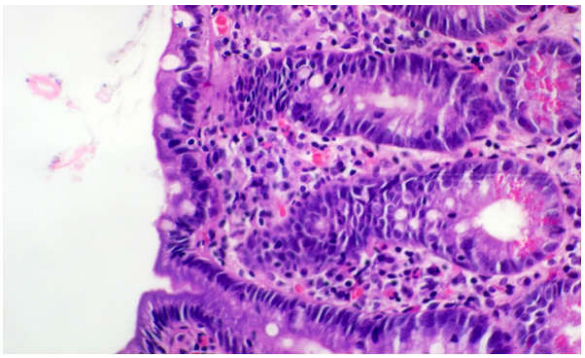

Fig. 21: *Duodenum:* Celiac sprue with grade iv villous atrophy & intra epithelial lymphocytes H & E X400

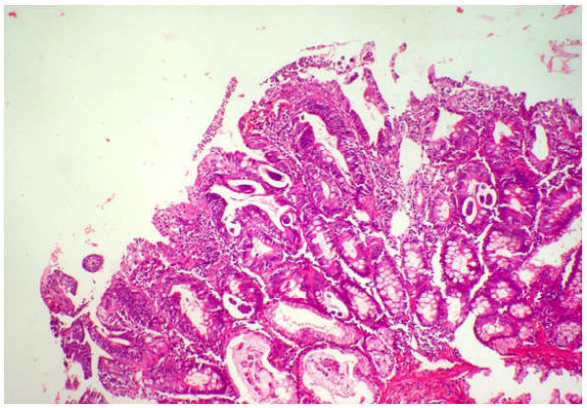

Fig. 22: *Duodenum:* Glands with worms of stronglyoides stercoralis H & E X100

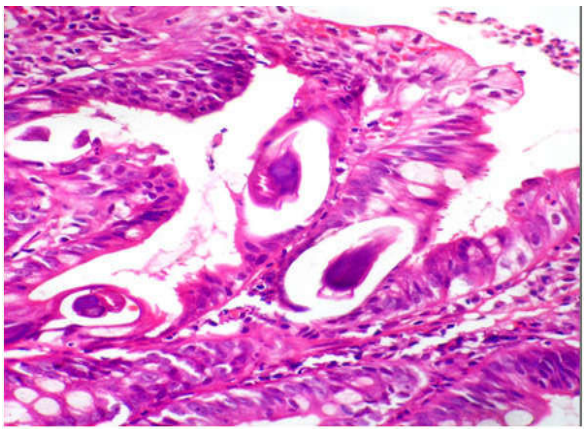

Fig. 23 : *Duodenum:* Glands with worms of stronglyoides stercoralis H & E X400

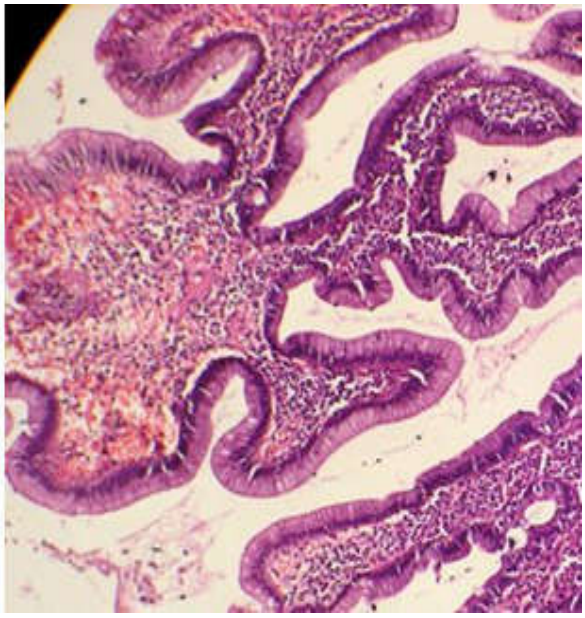

Fig. 24 : *Duodenum:* Adenomatous polyp H & E X 100

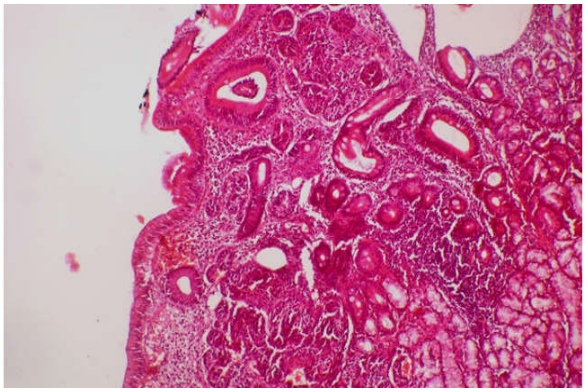

Fig. 25: *Duodenum:* Carcinoid H & E X 100

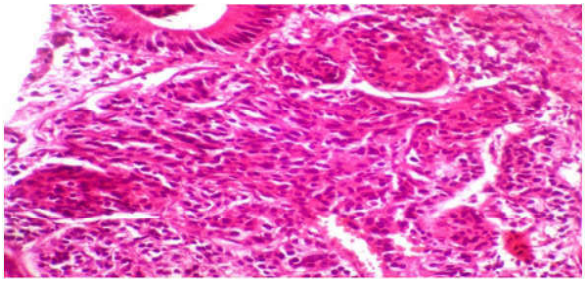

Fig. 26: *Duodenum:* Carcinoid H & E X 400

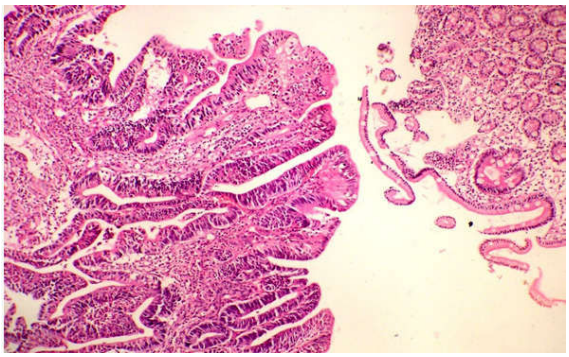

Fig. 27: *Duodenum:* Adenocarcinoma well differentiated H & E X 100

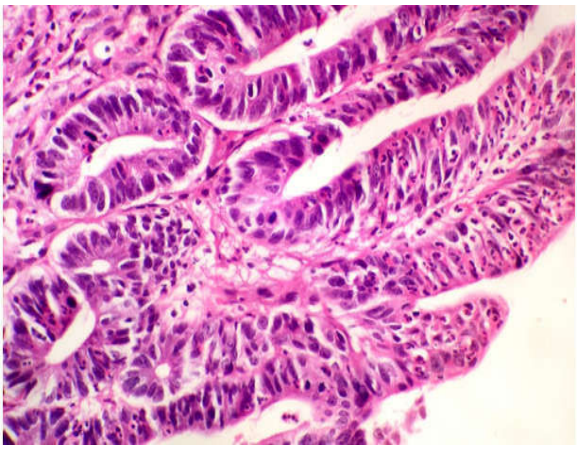

Fig. 28 : *Duodenum:* Adenocarcinoma well differentiated H & E X 400

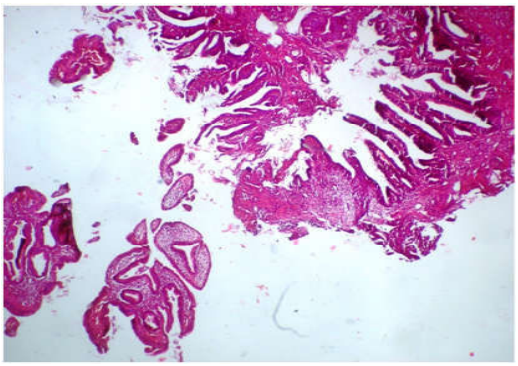

Fig. 29: *Ampulla of Vater:* Papillary adenocarcinoma H & E X 100

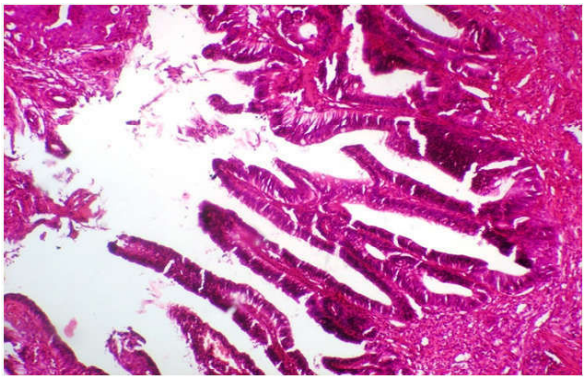

Fig. 30: *Ampulla of Vater:* Papillary adenocarcinoma H & E X400

All these various lesions encountered in the present study were comparable to study conducted by Nowshad et al. [12], Querishi et al. [5], Frank et al. [13], Sandhya et al. [15].

Conclusion

1. The fibreoptic diagnostic upper gastrointestinal endoscopy is relatively less invasive, simple, and safe and well tolerated procedure, cost effective and provides good diagnostic yield in confirming various upper gastrointestinal lesions.
2. In routine clinical practice, histology is the "gold standard" for definitive diagnosis of various lesions.
3. Endoscopic biopsy provides an excellent opportunity for the clinician and histopathologist to study the morphology of the lesion using minimal tissue obtained by an endoscope.
4. It obviates laparotomies and excision biopsies.
5. H pylori associated gastritis which leads to morbidity & mortality was easily diagnosed on endoscopic biopsies.
6. Malignancies both carcinomas and lymphomas can also be easily diagnosed.
7. Limitations in diagnostic interpretation are encountered at times due to tiny biopsy material, handling and processing artefacts. This can be overcome by taking mutilple bits at endoscopy from abnormal looking mucosa for establishing a definite diagnosis.

Subject under which paper should be published: Pathology

Acknowledgement: Nil

Financial support: Nil

Conflict of interest: Nil

Refrences

1. Aduful HK, Naaeder SB, Darko R, Baako BN, Lamptey JC, Nkrumah KN, et al. Upper Gastrointestinal Endoscopy at the Korle Bu Teaching Hospital, Accra, Ghana. Ghana Medical Journal. 2007 Mar;41(1):12-16.
2. Zubair M, Channa MA, Mirza MR, Habib L. Is biopsy needed in every gastritis found during endoscopy? Pakistan journal of Medical Sciences 2009 Oct.-Dec.;25(Part-1):5.
3. Zhang XF, Huang CM, Lu HS, Wu XY, Wang C, Guang GX, et al. Surgicaltreatment and prognosis of gastric cancer in 2613 patients. World J Gastroenterol. 2004;10:3405-08.
4. Majumdar SK. A short history of Gastrointestinal endoscopy. Bull InstHist MedHyderabad. 1993; 23(1):67-86.
5. Qureshi NA, Hallissey MT, Fielding JW. Outcome of index upper gastrointestinal endoscopy in patients presenting with dysphagia in a tertiary care hospital-A 10 years review. BMC Gastroenterolog. 2007;7:43.
6. Comparison of cancer incidence and patterns, Chapter 6, Comparison of Age Adjusted Incidence Rates. Consolidated Report of the PBCRs. 2001-2004:54-68
7. Aquino AC. SGNA Gastroenterology Nursing. A Core Curriculum 4th ed. 2008.
8. Afzal S, Ahmad M, Mubarik A et al. Morphological spectrum of gastric lesions endoscopic biopsy findings. Pakistan armed forces medical journal. 2006 June;56:143-49.
9. Sharma P, Misra V, Singh PA, Misra SP, Gupta SC. A Correlative study of Histology and Imprint Cytology in the Diagnosis of Gastrointestinal Tract Malignancies. Indian J. PatholMicrobiol. 1997; 40(2):139-46
10. Ahmed H, Farooqi JI, IkramullahQ, Ahmed F, Nawaz M, Gul S. Frequency of Upper Gastrointestinal Pathologies: Local Perspective. JPMI 2006;20(3):284-87.
11. Choomsri P, Bumpenboon W, Wasuthit Y, Euanorasetr C, Sumitpradit P, Suwanthunma W. Upper gastrointestinal endoscopy findings in patients presenting with dyspepsia. The Thai journal of Surgery 2010;31:7-12.
12. Khan N, Shabbir G, Zarif M, Khattak MI. Upper Gastrointestinal Endoscopic Assessment of Patients Presenting With Dyspepsia. JPMI 2007;21(3):212-16.
13. Sacco F, Bruce MG, McMahon BJ, Bruden D. A prospective evaluation of 200 upper endoscopies performed in Alaska native persons. International Journal of Circumpolar Health. 2007;66(2):144-52.

14. Riestra S et al. Duodenal biopsy for diagnosis of celiac disease. World J Gastroenterol. 2006; 12(31):5028-32
15. Gulia SP, Chaudhury M, Noorunnisa N, Balakrishnan CD, Balagurunathan K. Interpretation of Upper GastroIntestinal Tract Endoscopic Mucosal Biopsies - A Study Conducted In Teaching Hospital In Puducherry, India. Int J Med Health Sci. 2012 July;1(3):17-24.