International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Original Research Article

Histomorphological Study of Upper GI Endoscopic Biopsies

Anoja Aparajita, Ramesh Chandra Mohanty, Anubhav Abinash Sahu, Raghumani Mohanty, Prasanna Kumar Satpathy, Tapaswini Bhuyan

Department of Pathology, Hi-tech Medical College & Hospital, Bhubaneswar, Odisha, India.

Corresponding Author: Anubhav Abinash Sahu

Received: 30/10/2016 *Revised: 18/11/2016* *Accepted: 22/11/2016*

ABSTRACT

Background: Upper Gastrointestinal tract disorders are of the most frequently encountered cases in clinical practices. Endoscopic biopsy is common procedure to establish the diagnosis of different benign and malignant lesion. The biopsy specimen is used for histopathological study to confirm the endoscopic diagnosis in suspected malignancy and to rule out the benign appearing lesions for malignancy. The endoscopic biopsies are also used in monitoring the disease course, recurrence and response to therapy.

Objectives:

1. To study the overall frequency, age and sex distribution of various lesion.
2. To study varied spectrum of histopathological lesion both non-neoplastic and neoplastic in patients undergoing upper gastrointestinal biopsy.

Materials and Methods: The present study included endoscopic biopsies those were taken from patients, who were clinically diagnosed to have an upper gastrointestinal tract lesion needing biopsy, at the department of gastroenterology; Hi-Tech medical college. The selection of study material was prospective study (September 2012- August 2014).

Results: Out of the 72 upper GI endoscopic biopsy samples that were studied during the period of two years, 12 (16.66%) were from the oesophagus, 57 (79.17%) from stomach and 3 (4.17%) from duodenum. The highest incidence of upper GI endoscopic lesions was seen between 51-60 years of age. The male to female ratio in the present study was 2.6:1 which indicates male predominance.

Conclusion: There is predominance of malignancy compared to non neoplastic lesions in the present study. In patients below 50 years of age the most common lesion was gastritis and in patients more than 50 years of age the most common lesion was gastric malignancies. Endoscopic and histopathologic correlation was achieved in 84.72% of the cases. There is concordance of endoscopic biopsy findings with post biopsy resected specimens.

***Keywords*:** biopsy, endoscopy, upper GIT

INTRODUCTION

Upper gastrointestinal tract is a common site for various lesions, especially malignant tumours. Worldwide carcinoma stomach is the second most common cancer and carcinoma oesophagus is the sixth leading cause of death. [1,2] Early detection of malignancy greatly improves the survival rate of patients. Upper GI Endoscopy is regarded as the most sensitive and specific diagnostic method for the early detection of oesophageal, gastric and duodenal cancer. These neoplasms are often diagnosed by endoscopy in combination with biopsy.

Upper gastrointestinal endoscopy is an established mode of investigation and treatment of a wide range of upper gastrointestinal conditions.

Objectives of the Study

1. To study the overall frequency, age

and sex distribution of various lesion.

2. To study varied spectrum of histopathological lesion both non-neoplastic and neoplastic in patients undergoing upper gastrointestinal biopsy.

MATERIALS AND METHODS

The present study was carried out in the department of pathology of Hi-Tech Medical College and Hospital which includes 72 cases of upper GI endoscopic biopsies in patients who presented with complaints of dysphasia and dyspepsia, abdominal pain. This study was conducted during a span of 2 years from September 2012 to August 2014.

Upper gastrointestinal endoscopic biopsy samples fixed in 10% formalin was received in the laboratory. The patient details like age, sex, presenting complaints, associated complaints, clinical and endoscopic diagnosis were obtained from the requisition form that was sent along with biopsy samples. The biopsy sample was processed in automated tissue processor and of 3-5 micrometer sections were taken from formalin fixed paraffin embedded tissues, and mounted on one to three slides. Haematoxylin and eosin staining was done. Giemsa to observe for the presence of Helicobacter pylori and Periodic Acid Schiff (PAS) stain was performed wherever necessary.

Inclusion criteria:

1. All biopsies done for various upper abdominal symptoms with or without systemic symptoms.
2. Patients of all age groups and both sexes were included in the study.

Exclusion criteria:

Endoscopy cases where mucosa is normal, not suspicious of malignancy or oesophageal varices where there is chance of bleeding.

OBSERVATION

Out of the 72 upper GI endoscopic biopsy samples that were studied during the period of two years, 12 (16.66%) were from the oesophagus, 57 (79.17%) from stomach and 3 (4.17%) from duodenum.

There were 52 male patients and 20 female patients making the male: female ratio of 2.6:1. The highest number of biopsies was done in patients between 51-60 years followed by 41-50 years and 61-70 years. The lowest incidence was seen in age group of 81-90 years followed by 20-30 years and 31-40 years. There were two male and three female patients in the age group of 20-30 years. There were 3 male patients in the age group of 81- 90 years.

Table 1: Age wise distribution of upper gastrointestinal lesions in the present study

Age in years	Oesophagus			Stomach					Duodenum	Total
	Oesophagitis	malignancy	others	H pylori	Non H pylori	Gastric ulcer	malignancy	others	Duodenitis/ polyp	
20-30		1		1	1			0	1	4
31-40				1	2		2	2		7
41-50	1	1		1	5	1	4	1		14
51-60		4	3	1	6		12	0	1	27
61-70					1		8			9
71-80	1	1			2		3		1	8
81-90							2	1		3
Total	**2**	**7**	**3**	**4**	**17**	**1**	**31**	**4**	**3**	**72**

Among oesophageal lesions, malignant lesions were 7/12 (58.33%), non neoplastic lesions were 5/12(41.67%). Out of the carcinomas in oesophagus 71.4% (5 cases) were squamous cell carcinoma and 28.6% (2 cases) were adenocarcinoma. In the present study, squamous cell carcinoma presented mainly as polypoid growth and in adenocarcinoma as fungating growth in the lower third of oesophagus. The highest incidence of squamous cell carcinoma of oesophagus was seen between 51-60 years of age. The incidence of adenocarcinoma of oesophagus was higher in lower age groups.

The most common gastric lesion was gastric malignancy 31/57 (54.38%)

followed by gastritis 18/57 (31.58%). The most common site of involvement of gastric lesions was the pyloric antrum (50.87%) of stomach followed by body (38.61%) with ulcerative growth in most of the cases. In the present study, among the malignant lesions of the stomach papillary/ tubular adenocarcinoma was most common. There were six cases of signet ring carcinoma. Gastric malignancy endoscopically presented mainly as ulcerative growth (58%) followed by diffuse / infiltrative growth (22.5%).

Out of three duodenal biopsies two were chronic duodenitis and one was inflammatory polyp. All three cases are male.

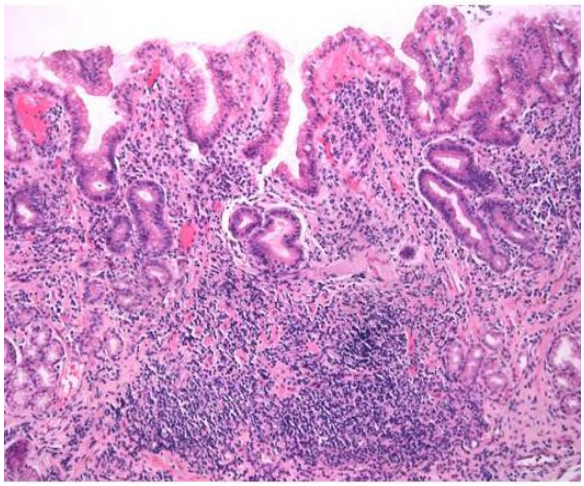

Fig 1: Chronic Gastritis with H. Pylori Infection H&E Stain (40x)

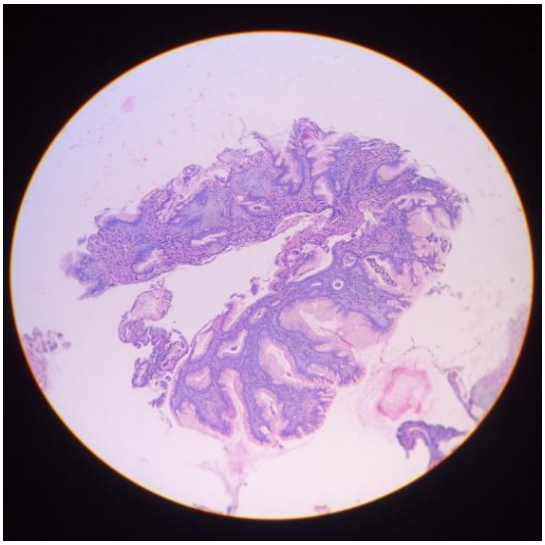

Fig 2: Hyperplastic Polyp of Stomach H&E Stain (10x)

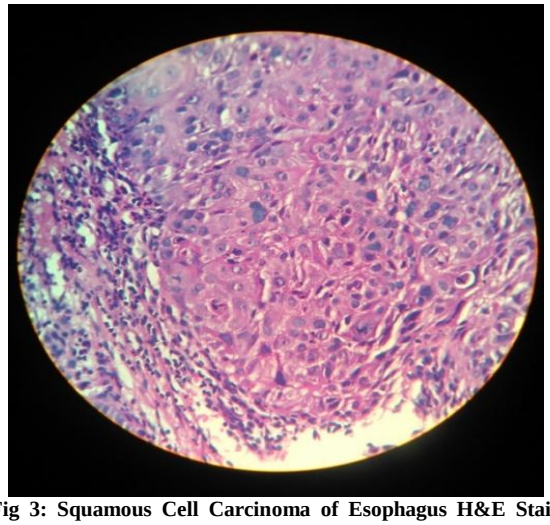

Fig 3: Squamous Cell Carcinoma of Esophagus H&E Stain (40x)

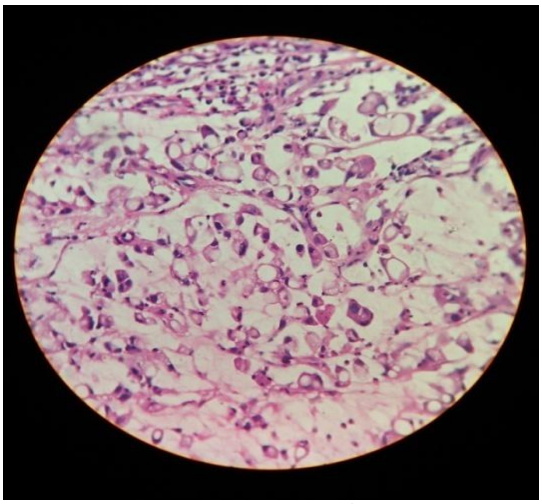

Fig 4: Signet Ring Adenocarcinoma of Stomach H&E Stain (40x)

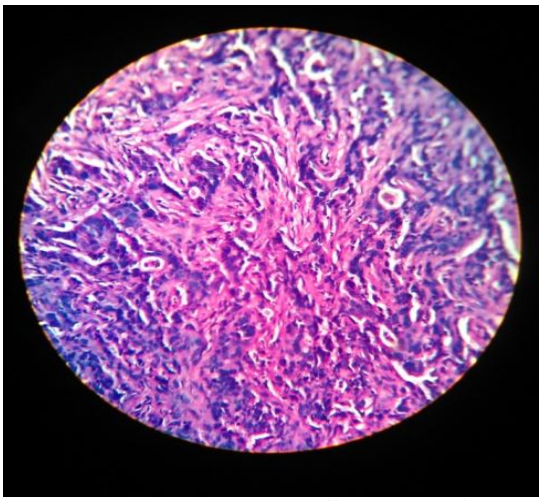

Fig 5: Adenocarcinoma (Poorly Differentiated) of Stomach H&E Stain (40x)

DISCUSSION

This study was conducted during a span of 2 years from September 2012 to August 2014 comprised of 72 upper

gastrointestinal endoscopic biopsies of which 12 were from the oesophagus, 57from stomach and 3 from duodenum.

The highest incidence of upper GI endoscopic lesions was seen between 51-60 years of age which comprises of 36.11% of total biopsies, similar to studies by Qureshi et al, [3] Frank et al [4] Piyaporn et al. [5] The oldest patient was 83 years old and youngest was 23years old. The incidence of neoplastic lesions was common in the 5th decade with male predominance. In the present study out of 72 patients there were 52 male patients and 20 female patients making the male: female ratio of 2.6:1, which indicates male predominance.

Among oesophageal lesions, malignant lesions were (58.33%), non neoplastic lesions were (41.67%) contrasting to finding of Krishnappa et al [6] where 56% constituted non neoplastic and 44% neoplastic lesions. In the present study the commonly encountered gastric lesions were malignancy (43.06%) followed by non neoplastic lesions (gastritis-25%, gastric ulcer-1.3%) and premalignant lesions (6.94%) in contrast to Nowshad et al [7] and Frank et al. [4] This may be due to selection biasing and also biopsy was not taken in all endoscopic cases. So some non neoplastic lesions were excluded from the study. Among the duodenal biopsies, non neoplastic lesions (4.17%) were most common.

Non neoplastic lesions accounted for 38.88 % of all upper gastrointestinal biopsies, gastric lesions (29.16%) being the most commonly involved followed by oesophageal lesions (5.55%) and then the duodenal lesions (4.17 %). Most commonly encountered Oesophageal non neoplastic lesions in oesophagus was oesophagitis, non neoplastic gastric lesions was gastritis (25%). Most commonly encountered nonneoplastic lesions was duodenitis (4.17%).These finding are similar to studies of Frank et al. [4]

Among all gastritis cases, prevalence of H. pylori positive gastritis was 19.04% and H. pylori negative gastritis was 80.96%, which was similar with studies of Sujata Metan et al, [8] Sandhya et al. [9] Improved living conditions, especially sanitation, in developed countries have reduced the rate of infection in recent decades. H. pylori gastritis was most commonly seen in antrum involved 75 % of cases followed by body of stomach in 25% of cases and the most common endoscopic finding in case of H. pylori gastritis were ulcer in 75% of cases which is similar with study of Ayman EL Guindy et al. [10]

Premalignant lesions accounted for 8.33% % of all biopsies in the present study comprising of Barrett's oesophagus (BE), intestinal metaplasia and polyps.

Incidence of upper GI malignancies was most commonly seen in stomach followed by oesophagus. Total number of upper GI malignancies were 52.77 % (38 cases), out of which 9.72% were oesophageal malignancy, 43.06% were gastric malignancy and no duodenal malignancy, with male predominance in both malignancies which was similar to study of Krishnappa et al, [6] which shows upper GI malignancies in 40% of cases, but in contrast to studies by , Nowshad et al. [7]

Highest incidence of oesophageal and gastric malignancy in the present study was seen between 51-60 years of age. The male and female ratio for oesophageal carcinoma is 2.5:1 and for gastric carcinoma was 2.4:1. These observations were similar to studies carried out by Qureshi et al [3] and Sandhya et al. [9]

In this study out of seven oesophageal malignancy, five cases were squamous cell carcinoma (71.4%) and two cases were adenocarcinoma (28.6%). Oesophageal carcinoma was most common in the middle third of oesophagus, followed by lower third in the present study which was similar to studies of Zhang et al [11] and Rao DN et al. [12]

Among the lesions of the stomach, there were 31(43.06%) cases of malignant lesions which is contrast with studies of Nowshad et al. [7] this is due to selection baising. Biopsy was not taken where

clinically suspicious lesion was not found during endoscopy. So non-neoplastic lesions had less incidence than malignant lesions. The common histological variant of gastric malignancy in the present study was adenocarcinoma with similar results in studies of Qureshi et al [3] and Sandhya et al. [9] In our study, adenocarcinoma of stomach endoscopically presented as ulcerative growth (60%), followed by diffuse infiltrating growth, which is similar to studies done by Krishnappa et al [6] where ulcerative lesions constituted 37%, Qizilbash and Stevenson et al [13] where ulcerative lesions constituted majority (70%) of the cases.

In present study there was no case of duodenal malignancy similar to Frank et al. [4]

Endoscopic Correlation with Histopathology

In present study out of the 72 cases, there was a consensus between endoscopic and histopathological diagnosis in 84.72% of the cases. The correlation between endoscopy and histology when carcinoma was diagnosed on endoscopy is 81.39% which is similar to studies of Krishnappa et al. [6] The correlation for benign lesions is 89.65% in present study. The correlation between endoscopy and histopathology with respect to oesophageal carcinoma was 100%. In carcinoma stomach endoscopic correlation with histopathology was 31 cases out of 37 cases (83.7%), less than that seen with oesophageal carcinoma. This may be because oesophageal carcinoma presents late in the disease course and hence can be picked up by endoscopy easily and stomach malignancies present mostly as ulcers or flat lesions especially in younger individuals with diffuse type of carcinoma, which may lead to misinterpretation endoscopically.

CONCLUSION

The incidence of malignancy is more compared to benign lesions in the present study. In patients below 50 years of age the most common lesion was gastritis and in patients more than 50 years of age the most common lesion was gastric malignancies. Endoscopic and histopathologic correlation was achieved in 84.72% of the cases. There is concordance of endoscopic biopsy findings with post biopsy resected specimens. Upper GI endoscopy is relatively less invasive, simple, and safe and well tolerated procedure, cost effective and provides good diagnostic yield in confirming various upper GI lesions. In routine clinical practice, histology is the "gold standard" for definitive diagnosis of various lesions. Biopsy provides an excellent opportunity for the clinician and histopathologist to correlate the clinical data, endoscopic findings with pathological lesions.

REFERENCES

1. Zhang XF, Huang CM, Lu HS, Wu XY, Wang C, Guang GX, et al. Surgical treatment and prognosis of gastric cancer in 2613 patients. World J Gastroenterol 2004; 10:3405-08.
2. Enzinger PC, Mayer RJ. Oesophageal Cancer. N Engl J Med 2003; 349:2241-52.
3. 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 Gastroenterology 2007; 7:43.
4. 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.
5. 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
6. Krishnapa Rashmi,Horakerappa MS, Astudy ofhistopathological spectrum of upper gastrointestinal track endoscopic biopsies;International journal of medical research and health sciences;2013;2319-5886.
7. Khan N, Shabbir G, Zarif M, Khattak MI. Upper Gastrointestinal Endoscopic

Assessment of Patients Presenting With Dyspepsia. JPMI 2007; 21(3):212-16.
8. Metan S;Upper GI tract endoscopic biopsies-a histopathological study. KLE University, Belgaum,Karnataka, 2011
9. Gulia SP, Chaudhury M, Noorunnisa N, Balakrishnan CD, Balagurunathan K. Interpretation of Upper Gastro Intestinal Tract Endoscopic Mucosal Biopsies - A Study Conducted In Teaching Hospital In Puducherry, India. Int J Med Health Sci 2012 July; 1(3):17-24.
10. Guindy A E, Ghoraba H. A study of concordance between endoscopic gastritis and histopathological gastritis in non ulcer dyspeptic patients with or without H pylori infection; Tanta Medical Sciences Journal Vol (2),No(2), April 2007: PP67-82.
11. Zhang Xin-Hua, SUN Gui-Qin, ZHOU Xiao-Jun, GUO Hui-Fang, ZHANG Tai-He. Basaloid squamous carcinoma of esophagus: a clinicopathological, immunohistochemical and study of sixteen electron microscopic cases WJG, 1998; 4(5): 397-403.
12. Rao DN, Desai PB, Ganesh B.Epidemiological observation of cancer of the esophagus-A review of Indian studies. IndianJ Cancer 1996; 33:55-75.
13. Qizibash AH, Stevenson GW. Early gastric cancer In: Sommers SC, Rosen PP editors, Pathology Annals. New York: Appleton-Century-Crofts; 1979:14-24.

How to cite this article: Aparajita A, Mohanty RC, Sahu AA. Histomorphological study of upper GI endoscopic biopsies. Int J Health Sci Res. 2016; 6(12):59-64.

****