Original Article

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Histomorphology of Upper GI Endoscpic Biopsies: A Study In Urban Care Centre

Puvitha. R. Duraisamy[1], Lalitha chithambram[2], Shifa Seyed Ibrahim[3]*, Kavitha Madasamy[4], Lavanya Krishnagiri Bala[4] and Pavithra Thandavarayan[4]

[1]Department of Pathology,Dharmapuri Medical College. India
[2]Department of Pathology, Coimbatore medical college, Coimbatore, India
[3]Department of Pathology, Madurai Medical College, Madurai, India
[4]Department of Pathology, Coimbatore medical college, Coimbatore, India

ABSTRACT

Background: Upper gastro intestinal [GI] disorders are one of the most commonly encountered problems in clinical practice. A variety of disorders can affect upper GI mucosa, ranging from dysphagia, GI bleed, dyspepsia to altered bowel habits. For investigating symptoms related to upper gastro intestinal tract, endoscopic surveillance followed by biopsies from the grossly abnormal areas are the standard protocol followed. Upper GI Endoscopy is a simple safe and well tolerated OPD procedure. Differentiating benign and malignant lesions needs histopathological aid. The definitive diagnosis of gastric disorders relies on the histopathological confirmation and is one of the bases for planning proper treatment. The objective of our study was to find the prevalence of various disease entities in upper GI lesions in our area

Methods: This is a cross-sectional study includes 196 specimens from oesophagus, stomach and duodenum for a period of one year 2016-2017. H&E slides were reviewed by panel of pathologists, the datas were compiled and analysed.

Result: Among 196 specimens, male predominance was noted among malignant lesions. In malignancies, squamous cell carcinoma moderately differentiated grade was highly predominant. Out of the seven biopsies from the oesophago- gastric [OG] junction, 57% of the cases were non neoplastic. Two cases each of squamous cell carcinoma and adenocarcinoma was diagnosed from the OG junction during our study period. The incidence of duodenal pathology was comparatively less, adenocarcinoma was very less [3.2%] and inflammatory pathologies were more prevalent with female predominance was noted. A case of carcinoid was diagnosed in the duodenum during our study period.

Conclusion: We had encountered wide variations of histopathology in the received biopsies and the incidence seen in our study matched those seen in the literatures.

Keywords: Oesopahgus, Stomach, Duodenum, Non meoplastic, Malignancy

Introduction

For investigating symptoms related to upper gastro intestinal tract, endoscopic surveillance followed by biopsies from the grossly abnormal areas are the standard protocol followed. Differentiating benign and malignant lesions needs histopathological aid. This being the gold standard in the diagnosis in upper GI symptoms, the incidence of various neoplastic entities that were diagnosed were taken up for our study in a hope to find the prevalence of various tumors in our area .196 specimens were received during our study period which included oesophagus, stomach and duodenum. According to national cancer registry 2012-14, in Chennai stomach is the second leading cancer site in male and comes fifth among females [1]. This incidence and incidence of carcinomas of the upper GIT of our study was compared along with those found in other literatures.

Materials and Methods

It is a retrospective study carried on for six months. 196 biopsy specimens were included in our study that was sent as a part of investigations for upper GI symptoms. Both non-malignant and malignant lesions that were diagnosed during that period were included in our study. Slides were reviewed by a panel of pathologists and sorted out into malignant and non-malignant lesions. Among them malignant lesions were tabulated, graded and compared with those available in the literatures.

Result

Out of 196 cases, 132 were male and the rest were female. In that, 122 cases were malignant and the rest were non neoplastic except two specimens, which were inadequate for processing[Table 1]. Inflammation was the most common non neoplastic entity seen during the study period

and stomach was the organ commonly involved in the inflammatory pathology in our study

Male: female ratio among those with malignancy was 2:1 in our study. The age range was from 23 years to 90 years with a mean of 57 years. In those who were less than 40 years of age, female predominance was noted among the oesophageal squamous cell carcinoma. As the age advances male predominance were noted. In case of oesophageal adenocarcinoma male predominance were noted [Table 2].

Totally 131 biopsies were received from the oesophagus and oesophago- gastric junction. 2.3% of the cases out of it were diagnosed as Barrett's oesophagus [Fig 1]. Out of the 122 malignancies reported from the endoscopic biopsies, most cases were oesophageal carcinoma which constitutes about 65.57%. Squamous cell carcinoma was the commonest carcinoma seen in the oesophagus [Fig 2] and next comes the stomach in which adenocarcinoma was seen in a higher proportion [Fig 3]. In the oesophagus moderately differentiated squamous cell carcinoma was highly predominant [Table 3].

Out of 68 gastric biopsies we had received 48.5% of the cases were malignant. Almost all the cases were adenocarcinoma except one case of diffuse large B cell Lymphoma [DLBC] [Fig 4]. The age incidence varied from fourth to seventh decade with a mean of 45 years. Poorly differentiated adenocarcinoma was seen among older individuals [seventh decade] .Male: Female ratio was 1.5:1 in our study. Stomach adenocarcinoma also showed mixed patterns when age and sex were correlated. In the lower age group female predominance were noted and as the age progress there were male predominance and later there were equal sex incidence. Most of the cases were of moderately differentiated grade [Table 3]. .

In our study we had included biopsies from the oesophago-gastric [OG] junction as well. Out of the seven cases that were received, 57% of the cases were non neoplastic. Two cases each of squamous cell carcinoma and adenocarcinoma was diagnosed from the OG junction during our study period [Table 3].

Comparatively the incidence of duodenal adenocarcinoma was very less [3.2%] and inflammatory pathologies were more prevalent. Female predominance was seen in the fourth decade and in the sixth decade there were equal sex incidence. A case of carcinoid was also diagnosed in the duodenum during our study period. A single biopsy from the periampullary region was received and it showed inflammatory pathology [Table 3].

Table 1: Specimens received during our study period with site wise stratification.

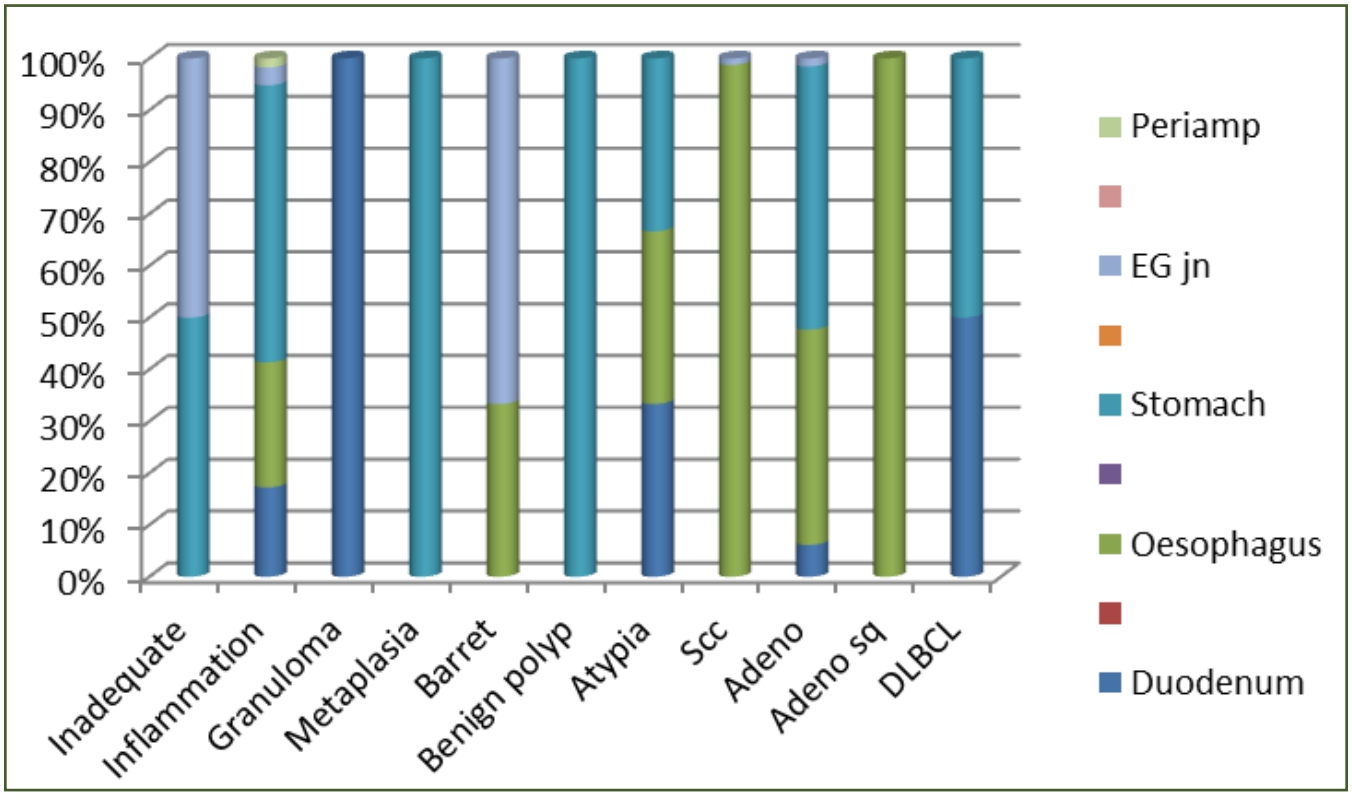
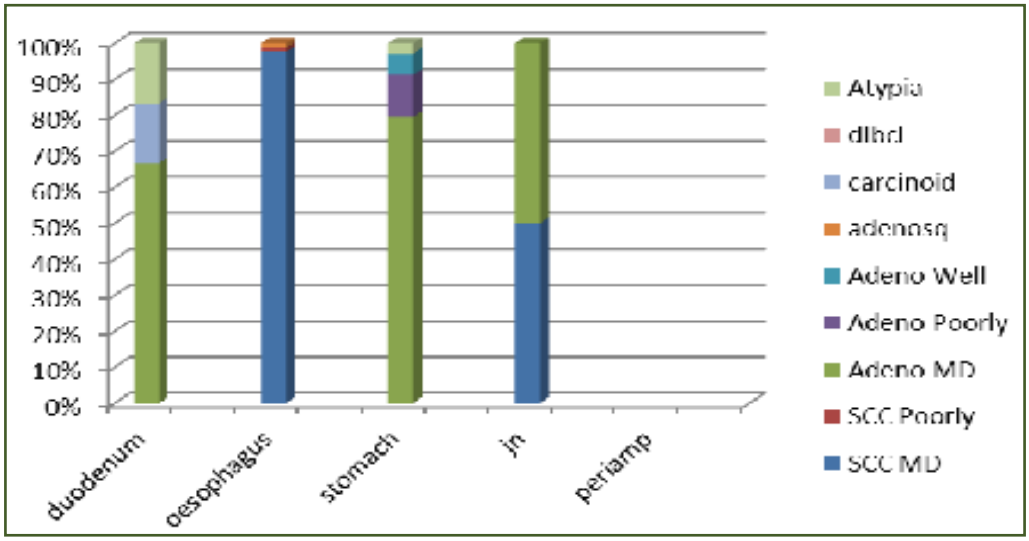


Table 2: Age and sex distribution of various grades of carcinomas

21-30 Yrs		31-40 Yrs		41-50 Yrs		51-60 Yrs		61-70 Yrs		71-80 Yrs		81-90 Yrs		SITE	
M	F	M	F	M	F	M	F	M	F	M	F	M	F		
														DUODENUM	SQAUMOUS CELL CARCINOMA MODERATELY DIFFERNTIATED GRADE
	1	3	4	7	3	24	8	17	6	5	1	1		ESOPHAGUS	
														STOMACH	
						1								OG JN	
														PERI AMPULLARY	
														DUODENUM	SQUAMOUS CELL CARCINOMA POORLY DIFFERENTIATED GRADE
								1						ESOPHAGUS	
														STOMACH	
														OG JN	
														PERIAMPULLARY	
														DUODENUM	ADENOCARCINOMA WELL DIFFERENTIATED GRADE
														ESOPHAGUS	
					1	1								STOMACH	
														OG JN	
														PERI AMPULLARY	
														DUODENUM	ADENOCARCINOMA MODERATELY DIFFERENTIATED GRADE
						3								ESOPHAGUS	
			1	9	3	4	4							STOMACH	
						1								OG JN	
														PERI AMPULLARY	
					1	1		1	1					DUODENUM	ADENOCARCIOMA POORLY DIFFERENTIATED GRADE
						2								ESOPHAGUS	
								3	1					STOMACH	
														OG JN	
														PERI AMPULLARY	
														DUODENUM	ADENOSQUAMOUS CARCINOMA
							1							ESOPHAGUS	
					1			1			1			STOMACH	
														OG JN	
														PERI AMPULLARY	
				1										DUODENUM	CARCINOID
										1				ESOPHAGUS	
														STOMACH	
														OG JN	
														PERI AMPULLARY	
									1					DUODENUM	DLBCL
														ESOPHAGUS	
									1					STOMACH	
														OG JN	
														PERI AMPULLARY	

Table 3: Site wise stratification of various carcinomas.



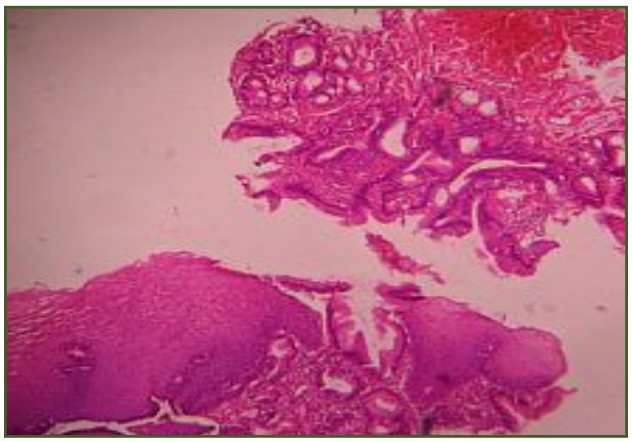


Fig. 1: Shows Squamous epithelium of the esophagus replaced by mucin secreting columnar epithelium – Barrett's esophagus [40x H&E].

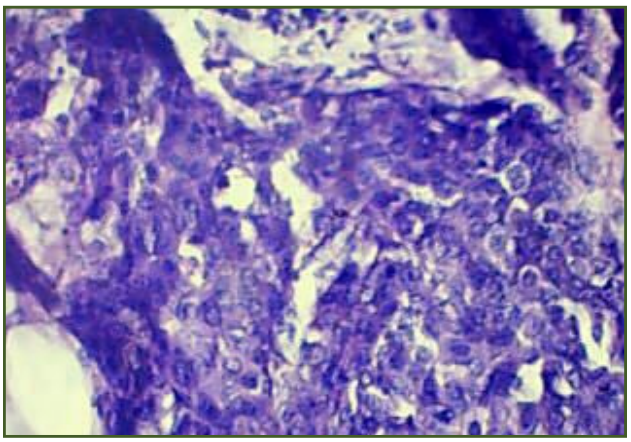


Fig. 2: Shows sheets of malignant squamous cell – Squamous cell carcinoma - Moderately differentiated grade [100x H&E].

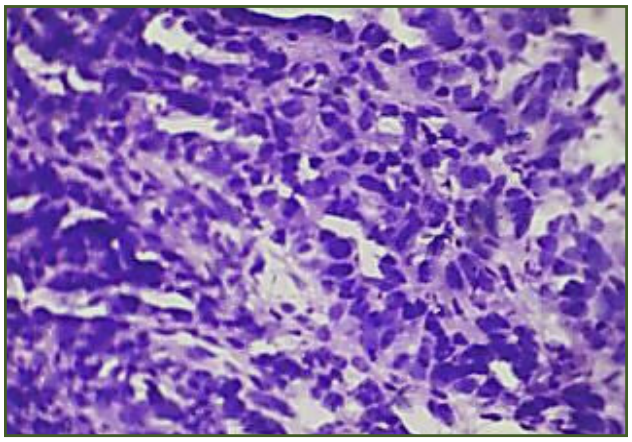


Fig. 3: Shows malignant epithelial cells arranged in a glandular pattern- Adenocarcinoma[100x H&E].

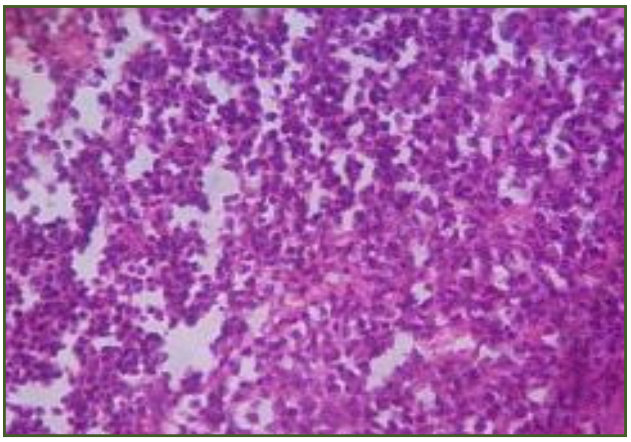


Fig. 4: Shows sheets of lymphoblast admixed with lymphocytes - DLBCL [40x H&E].

Discussion

Direct visualisation of the upper GIT even though is valuable in the diagnosis of a symptomatic patients, histopathology is the gold standard. Endoscopies are done to evaluate gastritis, gastric ulcer or in cases of suspected malignancies of the upper GIT [2].According to the study done by Shennak MM, et al and Paymaster JC, et al the investigations for upper GI symptoms were higher in males when compared to females[3, 4]. This is in concordance with our study. There are regional variations in the incidence of various carcinomas of the upper GIT. This study was done to find out the incidence of various carcinomas seen in the endoscopic specimens received as a part of investigations for upper GI symptoms and to compare it with the incidence of various other studies in the literature.

The number of new cases of oesophageal cancer was 4.2 per 100,000 men and women per year according to SEER registry. In Asia, squamous cell carcinoma of oesophagus is more prevalent compared to adenocarcinoma in contrast to the western world[5]. This is in correlation with our study where we saw more number of oesophageal biopsies [124 cases] and out of that 80 cases were squamous cell carcinoma and five were adenocarcinoma. 40% of the cases were from fifth to sixth decade which was comparable to Qureshi NA ,et al and Bazaz -Malik G,et al' studies[6, 7]. Male predominance was noted in the oesophageal squamous cell carcinoma in our study as seen in Bukhari U, et al'study[8]. Female predominance was noted in younger age groups, although female predominance was seen in B Ziaian, et al's study, they did not see in it in younger age groups as seen in our study[9]. This increase in the incidence among younger females may be due to the risk factors they are exposed and when intervened we will be able to prevent it. Smoking and alcohol are the two major risk factors associated with squamous cell carcinoma of the oseophagus[10]. Deficiency of vitamins and celiacsprue is also associated with oesophageal squamous cell carcinoma. Squamous dysplasia is the precursor lesion to squamous cell carcinoma.30% of the cases with dysplasia progress to carcinoma and 15- 30% of the squamous cell carcinoma are multiofcal[11].Dyplasia has prognostic significance as well , as the presence of dysplasia at the margins of squamous cell carcinoma has inverse relation to the depth of invasion of the tumor[12]. In our study the incidence of dysplasia of the oesophagus was 0.8% and it was 4.1% in Memon F, et al's study group[13]. Dysplasia of the oesophagus either progress from low grade to high grade or regress.Waf1p21 reactivity decreases in the dysplastic epithelium whereas immuno reactivity for PCNA and P53 increase [14]. In our study 65.57% of the cases had squamous cell carcinoma which was in consistent with Memon F, et al's study [78.6%] [13].

Barrett's oesophagus is defined as metaplastic replacement of squamous epithelium by columnar epithelium as a response to prolonged gastro oesophageal reflux. Barrett's oesophagus may or may not be associated with atypia/ neoplasm. Dysplasia may be low grade, high grade, crypt dysplasia, foveolar dysplasia, submucosal invasion, intra mucosal carcinoma. All of our cases presented without dysplasia. The incidence of Barrett's oesophagus seen in our study correlated with Jawalkar S, et al's study [15].AMACR and P53 are used to assess the disease progression from dysplasia to carcinoma[16, 17].

Adenocarcinoma arises from Barrett's oesophagus in 95% of the cases and the rest from heterotrophic glands or sub mucosal glands. Incidence of adenocarcinoma of the oesophagus was 24.4% in B Ziaian, et al's study which was in contrast with our study[4%]and in correlation with Mustafa SA, et al' study [9,18]. The incidence of adenocarcinoma of the western world was comparatively higher than Asian population and this may be the reason for the contrast observed between our studies[19]. Reflux, obesity, diet alcohol and smoking are the risk factors for adenocarcinoma of the oesophagus. Prognosis of this tumor as such is poor and it is worst in mucinous and signet ring cell variants of adenocarcinoma[20].

In Memon F, et al's study group 1.35% of the cases showed intestinal metaplasia with atypia in correlation with our study group[13]. Our case presented without dysplasia, in contrast their cases had dysplasia. Among gastric carcinomas, the incidence of non cardia gastric adenocarcinoma is decreasing worldwide[21]. Risk factor for cardia adenocarcinoma is H.Pylori and for non cardia it is obesity and reflux. Decrease in the incidence of cardia adenocarcinoma is due to various treatment methods available for H.Pylori. Rashmi K, et al in their study had detected27.94% malignancy among the received gastric biopsies which is in correlation with our study[22]ShreeshaKhandige in his study had mentioned that inflammatory gastric lesions predominated in his study, but in our study both inflammatory and malignancy showed equal prevelance[23].According to Kabir MA, et al's study, mean age was 51.05±14.98years which was in correlation with our study[24]. Male predominance is seen in our study and it was in correlation with Kabir MA, et al' s study[24]. In Kato Y, et al's study the incidence of well differentiated adenocarcinoma had decreased which correlated with our study[25]. Jawalkar S, et al in their study had mentioned that

squamous cell carcinoma was the predominating diagnosis in contrast to our study group where inflammatory condition predominated in the OG junction biopsies[15].

Because the duodenum has actively dividing epithelial lining which is susceptible to injury, inflammatory pathologies are common[13].Likewise, inflammatory pathologies predominated in our study which correlated with Shepherd NA, et al's and Memon F, et al's studies [26, 13].Kimchi NA, et al in their study had observed 15% of non-neoplastic lesions in the periampullary region[27]. In our study we had a single non neoplastic lesion in that site.

Conclusion

Endoscopy of the gastro intestinal tract though is diagnostic; histopathology is the gold standard in the diagnostic arena. We had encountered wide variations of histopathology in the received biopsies. The incidences we had seen were in correlation with those seen in the literatures. And it provided an excellent study tool to work up future programmes targeted on our population.

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***Corresponding author:**
Shifa Seyed Ibrahim, 82, J.N. Nagar, Old Natham Road, Madurai-17 India
Phone: +91 09486669274
Email: shifafrin@gmail.com

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