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Original Research Article

Histopathological Study of Gastric Endoscopic Biopsies

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Abstract

Background: Neoplastic and non-neoplastic Gastrointestinal tract (G.I) disorders are frequently encountered in clinical practice. Upper gastrointestinal endoscopy is a common tool for diagnosis. The common indication of upper gastrointestinal endoscopic biopsy includes odynophagia, gastroesophageal reflux and dysphagia. Endoscopic studies include biopsy for histopathological evaluation in clinically suspicious lesions. *Aims and Objectives:* To study the histopathological features in endoscopic biopsy of the gastric lesions. To study the correlation between various histopathological gastric lesions with age, sex and clinical presentation. To study the association of H. pylori in various gastric lesions. *Material and Methods:* The present study was done in the department of pathology and Gastroenterology in Sri Manakula Vinayagar Medical College and Hospital Pondicherry for 18 months. Detailed clinical history was taken and endoscopic biopsies were obtained from the gastric lesions. All the clinical and endoscopic findings of these cases along with diagnosis were noted down. A total of 74 cases were collected in the study period. *Results:* Average age of the patients in the present study was 46.7 years with 65% males and 35% females. The most common symptom reported by the patients in the present study was upper abdominal pain (87.8%). Non-specific gastritis was the most common diagnosis (48.7%) in the present study. H. *pylori* was the second most common diagnosis (36.5%). Adenocarcinoma, chronic gastritis and hyperplastic polyp/mucosa were diagnosed in 8.1%, 4.1% and 2.7% of the patients respectively. *Conclusion:* Our study confirms that non-specific gastritis and H. *pylori* gastritis are the most common etiologies of dyspepsia.

Keywords: Histopathology; Gastrointestinal; Endoscopic biopsy; H. *pylori*; Gastritis; Adenocarcinoma.

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Introduction

Gastrointestinal tract (G.I) disorders are frequently encountered in clinical practice.[9] The spectrum of lesions in the upper gastrointestinal tract range from mild esophagitis, gastritis, peptic ulcer disease to oesophageal, gastric and duodenal carcinomas. Endoscopic examination and biopsy is a simple,

safe and convenient procedure for the assessment of patients presenting with G.I symptoms. The common indication of upper GI endoscopic biopsy includes odynophagia, gastroesophageal reflux and dysphagia. Endoscopic studies also include biopsy for histopathological evaluation in clinically suspicious lesions.

In view of the increased incidence of gastric symptoms, the present study is undertaken to study the histopathological features in endoscopic biopsy of the gastric lesions and its association with Helicobacter *pylori.* Also this study analyses the correlation between various histopathological gastric lesions with age, sex and clinical presentation. For the standardized reporting of gastric biopsies, Sydney System and its modifications is the most widely used method.[4]

Materials and Methods

The present study was carried out in the department of pathology and Gastroenterology in Sri Manakula Vinayagar Medical College and Hospital Pondicherry for 18 months. Detailed clinical history was taken and endoscopic biopsies were obtained from the gastric lesions. All the clinical and endoscopic findings of these cases along with diagnosis were noted down. A total of 74 cases were collected in the study period. Inadequate biopsies were not included in the study. Clinical data including age, sex, clinical symptoms and endoscopic findings were obtained from the records. Biopsies received in the department were oriented and fixed in 10% neutral formaldehyde and routine tissue processing was done. Approximately 5 micron thick sections were obtained and stained with Hematoxylin and Eosin. (H and E) and then screened under light microscopy. Special stain Giemsa was performed to confirm the presence of H. *pylori.* Updated Sydney system was followed for histopathological diagnosis.

Results

The present study included 74 gastric endoscopic biopsies.The study period is from November 2016 to May 2018. The following results were observed

As shown in Table 1, the most common age group was 40 to 49 years (29.7%), followed by 50 to 59 years and 60 to 69 years (18.9% each). There were only three patients who were aged 70 years or above.

Our study population consisted of 65% males and 35% females (Fig. 1).

Table 1: Age distribution of study participants

Age group (years)	Number	Percentage
Less than 30	9	12.2
30–39	12	16.2
40–49	22	29.7
50–59	14	18.9
60–69	14	18.9
70 and above	3	4.1
Total	74	100.0

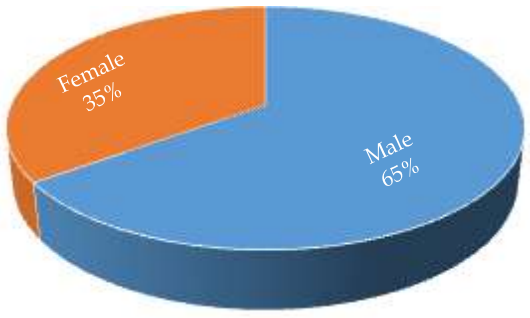

Fig 1: Gender distribution in the study participants Male (48), Female (26).

The most common symptom (Table 2) reported by the patients in the present study was upper abdominal pain (87.8%). Less common symptoms in our patients were abdominal bloating and distension, malena, loss of appetite, pain aggravated by food and retrosternal discomfort.

Table 2: Distribution of symptoms among the study participants

Symptoms	Number	Percentage
Upper abdominal pain	65	87.8
Pain aggravated by food	8	10.8
Pain relieved by food	2	2.7
Retrosternal discomfort	3	4.1
Belching	7	9.5
Nausea	25	33.8
Vomiting	34	46.0
Abdominal bloating	13	17.6
Abdominal distension	9	12.2
Malena	8	10.8
Hematemesis	17	23.0
Early satiety	6	8.1
Loss of appetite	8	10.8
Loss of weight	6	8.1

Non-specific gastritis was the most common diagnosis (48.7%) among the patient population of the present study (Table 3). Helicobacter pylori was the second most common diagnosis (36.5%). Adenocarcinoma, chronic gastritis and hyperplastic polyp/mucosa were diagnosed in 8.1%, 4.1% and 2.7% of the patients respectively.

Table 3: Distribution of participants by diagnosis

Diagnosis	Number	Percentage
Adenocarcinoma	6	8.1
H. pylori gastritis	27	36.5
Non-specific gastritis	36	48.7
Chronic gastritis	3	4.1
Hyperplastic polyp/mucosa	2	2.7
Total	74	100.0

Patients diagnosed with H. pylori were assessed for density (Table 4). Mild density was present in ten patient each (37%). Moderate density was present in ten patients (37%).Severe density was present in rest of the patients (26%).

Table 4: H. *pylori* Density in present case

H. *pylori* density	*n* = 27	Percentage
Mild	10	37
Moderate	10	37
Marked	7	26

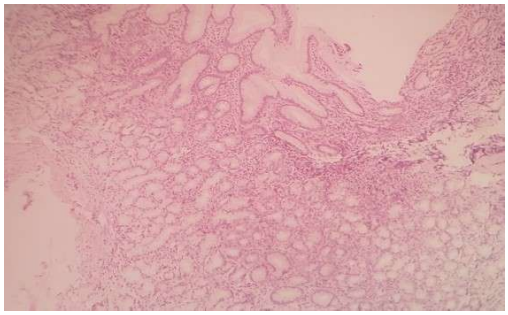

Fig 2: Chronic non specific gastritis (H&E 400x) Shows moderate chronic inflammatory cells in lamina propia.

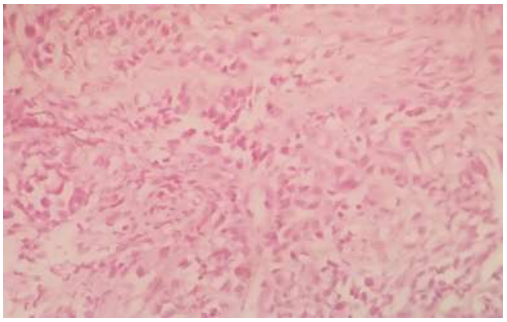

Fig 3: Poorly differentiated adenocarcinoma (H&E 400x) discohesive malignant cell.

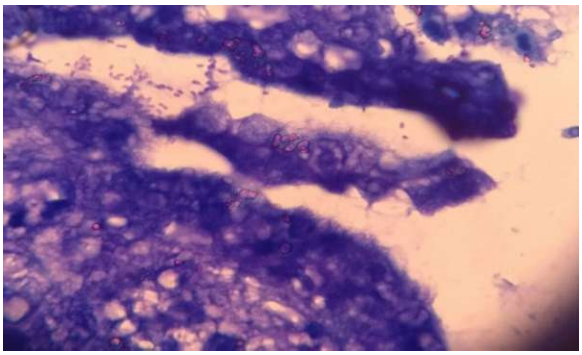

Fig 4: H. *pylori* (Giesma-400x) Shows curved to spiral bacteria.

Discussion

The present study was conducted in the Department of Pathology, Sri Manakula Vinagayar Medical College and Hospital and the study period was from November 2016 to May 2018 and included patients who underwent oesophago-gastrodeuodenoscopy (OGD-scopy) and biopsy of suspicious lesions during the study period. In the present study, a total of 74 patients with upper gastrointestinal symptoms were included. Majority of the patients were in the fifth and sixth and seventh decade of life in our study (Table 5), while in the study by Shrestha et al.[7] most of the patients where in the third to fifth decades.

Table 5: Comparing age at presentation for OGD-scopy (percentage)

	Age groups (in years)					
Studies	**Less than 30**	**30–39**	**40–49**	**50–59**	**60–69**	**70 and above**
Shrestha et al.[7]	26%	24%	19%	15%	9%	7%
Present study	12.2%	16.2%	29.7%	18.9%	18.9%	4.1%

All patients underwent upper gastrointestinal endoscopy with gastritis being the most common diagnosis (n = 66, 89.3%) of which non-specific gastritis was the most common type of gastritis (48.7%). H. *pylori* was the second most common diagnosis (36.5%) while 4.1% had chronic gastritis (Table 6). Shrestha et al. reported the incidence of gastritis to be 41.6% which is similar to findings of the present study.[7] In 2006, Ahmed et al. reported the rate of H. *pylori* infection among dyspeptic patients (age 20–29) to be 77.7% based on histology.[2] In the same year, Adlekha et al. from Kerala in southern India reported the prevalence of H. *pylori* to be 62% among 530 dyspeptic subjects.[1]

Table 6 shows some studies including ours and it is apparent that the frequency of H. *pylori* infection in India is declining. The likely explanation for this decline in H. *pylori* infection rate is the improvement in socioeconomic status in India during the past two decades. India is going through a phase of socioeconomic development, and there have been significant improvements in living conditions. Urbanization, improved water supply and sanitation, and smaller family size may all contribute to declining infection rate.[6] In addition, widespread use of antibiotics and liberal use of H. *pylori* eradication therapy might have reduced the burden of infection in the community. Additionally, we found the diagnosis of gastritis to be significantly associated with age groups of 30 to 49 years (p-value = 0.04).

Table 6: Proportion of patients with gastritis with histopathological impression of H. *pylori*

Studies	**Percentage**
Satoskar et al.	50.4
Yakoob et al.	62.5
Dandin et al.	48.0
Maitra et al.	66.9
Present study	36.5

As Table 7 shows, 74% of the patient in our study with H. *pylori* infection were in the 30–60 age group, which was comparable to the study by Adlekha et al.[1] where 59% of H. *pylori* positive patients were in the same age group.

Table 7: Comparing age group (percentage) of patients diagnosed with H. *pylori*

	Age groups (in years)					
Study	**<30**	**30–39**	**40–49**	**50–59**	**60–69**	**≤70**
Adlekha et al.[1]	15%	19%	20%	20%	15%	11%
Present study	7.4%	25.9%	25.9%	22.2%	14.8%	3.8%

Jones and Lydeard, in a community based study, observed a decrease in frequency of symptoms with age, especially in males,[5] while Talley et al. reported a higher incidence of dyspepsia among younger age groups and females.[8] Out of the 27 patients diagnosed with H. *pylori*, 59.3% were males (Table 8) which were similar to other studies like Kaore et al. (63.04% males) and Adlekha et al. (62% males).[1]

There is no apparent reason as to why males would have greater exposure or greater susceptibility to infection than females. One reason for the inconsistency in results is that in certain populations H. *pylori* infection may be inadvertently eliminated because of more frequent antimicrobial treatment of women for urogenital tract infection.

Table 8: Comparison of gender distribution of patients diagnosed with H. *pylori*

Studies	**Male**	**Female**
Kaore et al	63.04%	36.96%
Adlekha et al.[1]	62%	38%
Present study	59.3%	40.7%

Most common symptoms (Table 9) reported by patients diagnosed with H. *pylori* were upper abdominal pain, hematemesis, nausea and vomiting, which is somewhat similar to the study done by Ayana et al. where epigastric pain was reported by 86.1% of patients with dyspepsia.[3]

Table 9: Comparison of most common symptoms reported by patients with H. *pylori* infection

Studies	**Symptom**	
	Epigastric pain	**Nausea**
Ayana et al.[3]	86.1%	46.6%
Present study	100%	40.7%

Adenocarcinomaand hyperplastic polyp/ mucosa were diagnosed in 8.1% and 2.7% of the patients respectively (Table 3). We observed the three most common diagnoses to be significantly associated with age group of 30 to 39 and 40 to 49 years. These diagnoses were not statistically associated with gender of the patients. All patients diagnosed with adenocarcinoma reported symptoms of upper abdominal pain, abdominal distension, melena, early satiety, appetite loss and weight loss. Among patients diagnosed with non-specific gastritis, upper abdominal pain and hematemesis were the most common symptoms, while none complained of weight loss and early satiety.

There are a few limitations of this study. Ours is a single centre study and obtained samples from patients residing in city. As we know, environmental factors like sanitation and dietary patterns affect the prevalence of H. *pylori* and other forms of gastritis, the results of our study cannot be generalized to other geographical locations. This brings us to the second limitation, that association of H. *pylori* infection with life-style related modifiable factors was not accessed. Thirdly, the study population was confined to only symptomatic patients suspected of having a lesion, which limits the actual prevalence of gastritis and H. *pylori* infections and do not totally reflect the number of infected individuals in the community.

Future studies involving larger numbers of subjects should address the impact of smoking, drinking, socioeconomic status, sanitation, and dietary pattern that might affect the type of gastritis among adults.

Conclusion

In this observation study conducted in the Department of Pathology, Sri Manakula Vinayagar Medical College and Hospital, we included 74 patients with dyspepsia and suspected for having a gastric lesion. Most common age group of the patients was 40 to 49 years. Males comprised of 65% of the population.

Our study confirms that non-specific gastritis and H. *pylori* gastritis are the most common aetiologies of dyspepsia. H. *pylori* infection is still present in significant proportion of dyspeptic patients though its incidence is decreasing

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