

Original Research Article

## **Spectrum of Gastroduodenal Lesions in Endoscopic Biopsies: A Histopathological Study with Endoscopic Correlation**

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**Abstract:** Endoscopy of the gastro intestinal tract is a simple safe and well tolerated procedure, the endoscopic visualisation of the suspected site with biopsy leads to the early detection of the pathologic process and institution of appropriate therapy to the patient. This is a prospective study to find out the spectrum of gastro duodenal lesions diagnosed by histopathology in relation to age & sex distribution, and correlating them with endoscopic findings. Biopsy of 220 gastroduodenal endoscopies during November 2014 – May 2016 was examined. Serial sections, 3 – 5  $\mu$  were stained with Haematoxylin & Eosin (H&E) stain. Analysis of 220 cases of Gastroduodenal biopsies was done. Male to female ratio of 1.36: 1 and age range 16 – 85 yrs with commonest age group 41-50 years was observed. 204(92.73%) cases were from stomach and 16(7.27%) from duodenum. Chronic superficial gastritis 175 cases (79.54%) was observed to be most common inflammatory lesion followed by erosive gastritis 16 cases (7.27%), chronic duodenitis 12 cases(5.45%) and gastric carcinoma 8 cases(3.63%). In stomach, chronic superficial gastritis, chronic active gastritis, gastric carcinoma was well correlated with endoscopy findings. No significant correlation of duodenal lesions and endoscopy findings was seen. Chronic superficial gastritis was the most common gastro duodenal lesion followed by erosive gastritis, chronic duodenitis and gastric carcinoma. Significant correlation with endoscopic findings was seen in gastric lesions but not in duodenal lesions.

**Keywords:** Biopsy, Endoscopy, Histopathology, Gastroduodenal lesions.

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### **INTRODUCTION**

Gastro duodenal disorders are a frequent cause of clinical disease, with inflammatory and neoplastic lesions being particularly common [1]. Diagnostic endoscopy is a simple, safe and well tolerated procedure [2]. Endoscopy helps to detect pathological lesions in the alimentary tract to ensure that the most appropriate treatment is given to the patient. With advances in endoscopic techniques like flexible fibre optic endoscopes, biopsy can be easily obtained with precision from the intended site, along with an optical image or an electronic video image.

Present study was undertaken to determine the spectrum of gastro duodenal lesions diagnosed by histopathology in relation to age & sex distribution, and correlating them with endoscopic findings.

### **MATERIALS AND METHODS:**

Present prospective study was done to analyse the endoscopic biopsies from gastro duodenal lesions from patients with dyspeptic symptoms attending the department of gastroenterology at Sri Venkateshwaraa Medical College Hospital and Research Centre, Puducherry from November 2014 – May 2016 after obtaining the approval of Institutional Ethics Committee. Total 220 cases of endoscopic gastroduodenal mucosal biopsies were evaluated. Majority of the biopsies were taken from the gastric antrum. Biopsy specimens were fixed in 10% buffered formal saline, followed by manual tissue processing<sup>3</sup> and embedded in paraffin with the mucosal surface facing the cut end of the block. Serial sections, 3-5  $\mu$  thick were prepared and then stained with routine H & E stain.

**RESULTS**

Out of 220 Gastroduodenal endoscopic biopsies, 127(58%) were males and 93(42%) were females; male: female ratio being 1.36: 1. Age of the patients ranged between 16 – 85 years. The commonest age group was 41-50 years of age. The site-wise distribution of endoscopic biopsies was – stomach 204(92.73%) and duodenum 16(7.27%).

In this study, chronic superficial gastritis 175 cases (79.54%) was observed to be more common followed by erosive gastritis 16 cases (7.27%), chronic duodenitis 12 cases(5.45%) and gastric carcinoma 8 cases(3.63%).

Table: 1 shows lesions in the stomach: Chronic superficial gastritis 80 cases (39.22%) were observed to

be more followed by chronic active gastritis 74 cases (36.27%). And the least one was dysplasia 1 case (0.49%). Gastric Carcinoma was observed in 8 cases (3.92%).

Table: 2 shows lesions in the duodenum: Duodenitis 12 cases (75.00%) were the most common lesion to be observed. And the least one was duodenal ulcer 1 case (6.25%). Duodenal adenoma were found in 2 cases (12.5%).

Table: 3 shows correlation between endoscopic findings and histopathological diagnosis in gastric biopsies: Chronic superficial gastritis and chronic active gastritis in histopathology were the most common lesions. Inflammation was the most common endoscopic feature followed by ulcer and nodule.

**Table 1: shows lesions in the stomach**

Nature of Lesions	No. of Cases	Percentage (%)
Chronic superficial gastritis	80	39.22
CSG with IM	12	5.88
CACG	74	36.27
CACG with IM	9	4.41
Congestive gastropathy	2	0.98
Erosive gastritis	16	7.85
Hyperplastic polyp	2	0.98
Dysplasia	1	0.49
Carcinoma	8	3.92
Total	204	100

**Table 2: shows lesions in the duodenum**

Nature of Lesions	No. of Cases	Percentage (%)
Duodenitis	12	75.00
Duodenal ulcer	1	6.25
Duodenal adenoma	2	12.50
NSP	1	6.25
Total	16	100

**Table 3: shows correlation between endoscopic findings and histopathological diagnosis in gastric biopsies**

Histopathology diagnosis	Endoscopic findings							Total	p value
	Ulcer	Inflammation	PG	UPG	Nodule	Polyp	NSP		
Chronic superficial gastritis	3	74	-	-	3	-	1	81	0.019
Chronic active gastritis	2	67	-	-	3	-	1	73	0.042
CSG with IM	1	10	-	-	1	-	-	12	0.868
CACG with IM	-	7	-	-	1	-	-	8	0.739
Congestive gastropathy	-	2	-	-	-	-	-	2	0.551
Erosive gastritis	4	12	-	-	-	-	-	16	0.245
Hyperplastic polyp	-	-	-	-	1	1	-	2	0.924
Dysplasia	-	1	-	-	-	-	-	1	0.906
Carcinoma	1	-	2	5	-	-	-	8	0.000
Total	11	173	2	5	9	1	2	203	

Table: 4 shows correlation between endoscopic findings and histopathological diagnosis in duodenal biopsies: Most common endoscopic finding in duodenum was inflammation. Chronic duodenitis was

the most common histopathological diagnosis. Duodenal adenoma was the second common histopathological diagnosis whose endoscopic finding was inflammation.

**Table 4: shows correlation between endoscopic findings and histopathological diagnosis in duodenal biopsies**

Histopathology diagnosis	Endoscopic findings					Total	p value
	Ulcer	Inflammation	PG	Nodule	Folds		
Duodenitis	1	9	1	3	-	14	0.318
Duodenal ulcer	1	-	-	-	-	1	0.000
Duodenal adenoma	-	2	-	-	-	2	0.551
NSP	-	-	-	-	1	1	0.000
Total	2	11	1	3	1	18	

**DISCUSSION**

Biopsy sampling of gastric mucosa at endoscopy provides useful information that helps in the diagnosis of various lesions [4, 5]. In our present study, chronic superficial gastritis 175 cases (79.54%) was observed to be more followed by erosive gastritis 16 cases (7.27%), chronic duodenitis 12cases (5.45%) and gastric carcinoma 8cases (3.63%).This study is comparable to the study conducted by Godkhindi VM *et al.*; [6], in which chronic superficial gastritis (35.81%) was observed to be high followed by duodenal ulcer (20.90%), gastric ulcer and carcinoma (12.72%).

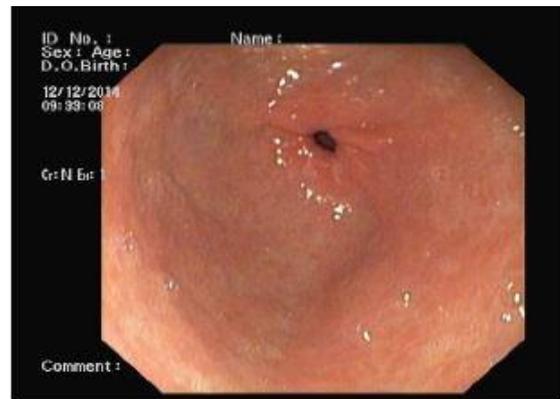
The similar trend was observed in the study done by Sharma P *et al.*; [7] where, chronic superficial gastritis was the most common lesion (89%) followed by duodenitis (16%), duodenal ulcer (5%), gastric carcinoma (5%) and gastric ulcer (4%).

In our present study, 59 cases (26.81%) were in the age group of 41-50 followed by 52 cases (23.63%) in the age group of 31-40.This study was comparable with studies by Sharma P *et al.* and Godkhindi VM *et al.*; [6] in which there was maximum distribution of gastro duodenal lesions in the age group of 31-40. This shows that gastro duodenal lesions are more common in 3<sup>rd</sup> decade and 4<sup>th</sup> decade of age.

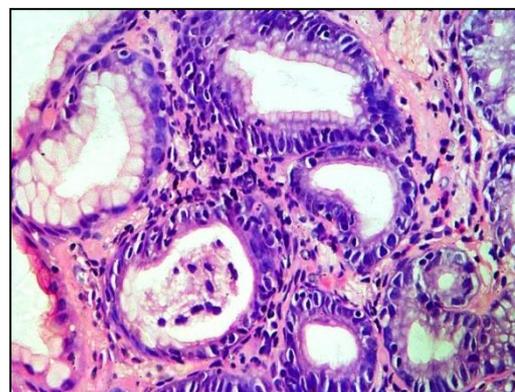
The present study showed that among 220 cases of gastro duodenal biopsies studied, 127 (57.72%) were males and 93(42.27%) were females. There was more of male preponderance with M: F ratio of 1.36: 1 which was similar with the study done by Sharma P *et al.*; [7] and Godkhindi VM *et al.*; [6] which show similar male preponderance (Table no 14). This reflects the fact that males are exposed to more risk factors than females [8].

In our study, the youngest patient was 16 years old and the oldest patient was 85 years old. The age related difference could be due to variation in the risk factor among the different age groups.

In our present study, most of the inflammatory lesions in endoscopy were diagnosed as chronic superficial gastritis and chronic active gastritis in histopathology. (Figure-1a & 1b) Chronic superficial gastritis and chronic active gastritis were positively associated with inflammation in endoscopy. The p value for chronic superficial gastritis and chronic active gastritis with endoscopy finding of inflammation was 0.019 and 0.042, therefore their association was found to be significant. These findings recommend endoscopy and biopsy as valuable diagnostic procedure among patients with chronic gastritis.

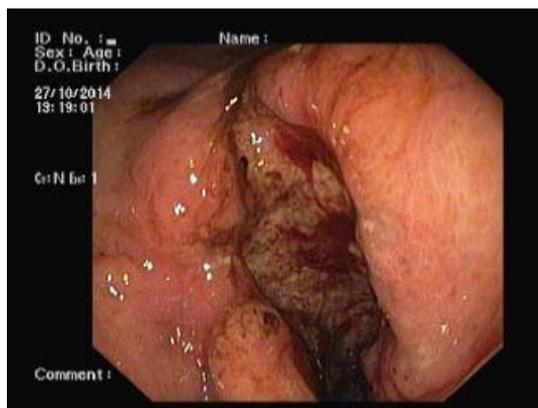


**Fig 1a: Endoscopy-Antral inflammation**

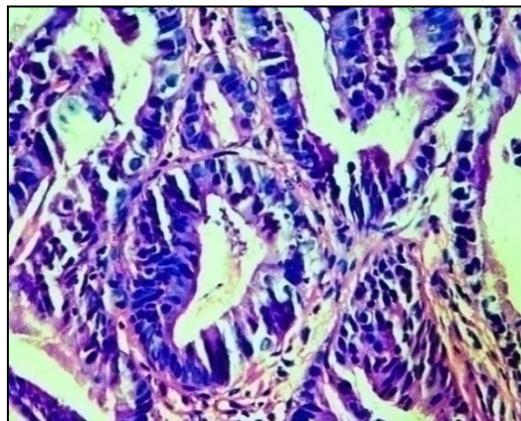


**Fig 1b: H&E, 40 X magnifications: Chronic Superficial gastritis with activity**

All the cases which showed gastric polypoidal growth (2 cases) and ulceroproliferative growth (5 cases) in endoscopy were diagnosed as gastric carcinoma in histopathology. (Figure-2a & 2b) The *p* value for gastric carcinoma with endoscopy finding of polypoidal growth and ulceroproliferative growth in stomach was 0.000, therefore their association was found to be highly significant. These findings recommend endoscopy and biopsy as valuable diagnostic procedure among patients suspecting gastric carcinoma.



**Fig 2a: Endoscopy- Circumferential ulceroproliferative growth in the proximal Antrum**



**Fig 2b: H&E, 40 X magnifications: Well differentiated adenocarcinoma of stomach**

This study is comparable to the study conducted by Sharma S *et al.*; [7] which showed a poor correlation between endoscopic and histopathological evidence of inflammation in the stomach but our present study showed good correlation. Our present study had similar finding as Sharma S *et al.*; [7] study which showed a good correlation in the cases of carcinoma. Endoscopic examination and histopathological examination of suspected gastric lesions should go parallel and neither should be a substitute of each other since endoscopy is incomplete without biopsy.

In our present study, the most common histopathological diagnosis was chronic duodenitis which had endoscopic findings of ulcer (1 case), nodule (3 cases) and polypoidal growth (1 case). Duodenal adenoma was the second common histopathological diagnosis whose endoscopic finding was inflammation (2 cases).

The *p* value for chronic duodenitis with endoscopy finding of inflammation was 0.318, therefore the association was found to be insignificant. This study is comparable to the study done by Lewis S *et al.*; which concluded that endoscopic appearance of duodenal mucosa is unreliable in determining the presence of histological inflammation [9].

### CONCLUSION

Endoscopy is a less invasive non-surgical procedure of choice for the diagnostic evaluation of the upper gastrointestinal tract but it has its own limitations since it carries significant percentage of over diagnosing or under diagnosing any pathologic entity affecting stomach and duodenum. In our study, chronic superficial gastritis was the most common gastro duodenal lesion followed by erosive gastritis, chronic duodenitis and gastric carcinoma. This study showed chronic superficial gastritis, chronic active gastritis, and gastric carcinoma was well correlated with endoscopy findings. No significant correlation of duodenal lesions and endoscopy findings was found in this study. Hence endoscopy is incomplete without biopsy and histopathology is the gold standard for the diagnosis of endoscopically detected lesions.

### ABBREVIATIONS:

- CSG- Chronic superficial gastritis
- CACG- Chronic active gastritis
- IM- Intestinal metaplasia
- NSP- No significant pathology
- PG- Polypoidal growth
- UPG- Ulceroproliferative growth

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