# Clinico-Pathological Correlation of Upper Gastrointestinal Disease by Gastroduodenoscopy and Biopsy in a Tertiary Hospital

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Article received: 21st May, 2021

Article accepted: 28th Dec, 2021

## ABSTRACT

**Introduction:** Endoscopic biopsies are easy and safe out patient based procedure that provides accurate diagnosis of patients having symptoms of gastrointestinal tract. Histo-pathological findings are one of the gold standard for the confirmatory diagnosis of lesions detected in endoscopy.

**Materials and Methods**:A two year retrospective study was carried out in 100 upper gastrointestinal endoscopic biopsies. Endoscopic upper gastrointestinal biopsies were fixed in 10% formalin solution. Routine Hematoxylin & Eosin stain and Giemsa stain was done to detect Helicobacter pylori.

**Results:** Out of 100 patients most common histo-pathological finding was chronic gastritis (n=57; 57%) followed by dysplesia (n=16; 16%) and chronic gastritis with intestinal metaplasia (n=12;12%). 14(24.6%) of chronic gastritis patients were Helicobacter pylori positive, 2(16.7%) of chronic gastritis with intestinal metaplasia were Helicobacter pylori positive and none of the patients with dysplesia were Helicobacter pylori positive. 14(14%) of the specimen were malignant out of which 13(92%) were adenocarcinoma and 1(8%) was squamous cell carcinoma.

**Conclusion:**Early detection of Helicobacter pylori and its eradication is important to prevent chronic gastritis and complications.

**Keywords:** Gastroduodenoscopy, Histopathology, Upper GI lesions.

## INTRODUCTION

Gastric carcinoma is the second most common carcinoma and is the leading cause of death (1). Endoscopic biopsies give confirmatory diagnosis for further management. It also provides an opportunity to diagnose Helicobacter pylori.[1]. Endoscopic screening may detects early stage of the neoplastic lesions like dysplasia and intestinal metaplasia, which prevents the progression of lesions to invasive cancer[2].

## MATERIALS AND METHODS

A total number of 100 gastric biopsies were studied over a period of two years. Patients who were clinically diagnosed with gastric diseases were taken up for diagnosis of lesion through endoscopy. Patients of both gender, inpatients and outpatients

were included in our study. Endoscopic biopsies were taken for histopathological examination at the department of Internal medicine ,PAHS. Samples were fixed in 10% formalin and Paraffin blocks were made. 3-4µ sections were stained with haematoxylin and eosin, mounted on a glass slide and examined under light microscope. For suspicious neoplastic lesion PAS stain was done and for H.pylori, Giemsa stain was done. Data entered in MS excel file and analysis using SPSS version 16.0 software .For the comparison of the endoscopy biopsy with HPE, statistical analysis was done.

## RESULTS

Out of 100 patients studied, the age ranged from 25 to 85 years (Table 1) with a mean age of 56.52%.

**Table 1: Age and sex distribution of patients**

| Age group | Sex | | Total | Perce-ntage (%) |
|---|---|---|---|---|
| | Male | Female | | |
| **20-30** | 3 | 7 | 10 | 10 |
| **31-40** | 4 | 7 | 11 | 11 |
| **41-50** | 3 | 6 | 9 | 9 |
| **51-60** | 11 | 16 | 27 | 27 |
| **61-70** | 15 | 5 | 20 | 20 |
| **71-80** | 14 | 8 | 22 | 22 |
| **81-90** | 0 | 1 | 1 | 1 |
| **Total** | 50(100.0%) | 50(100.0%) | 100 | 100 |

### Distribution of biopsies specimen

Our studied showed maximum of 82% from stomach, 4% from gastroduodenal junction, 7% from duodenum and 7 % from esophagus.

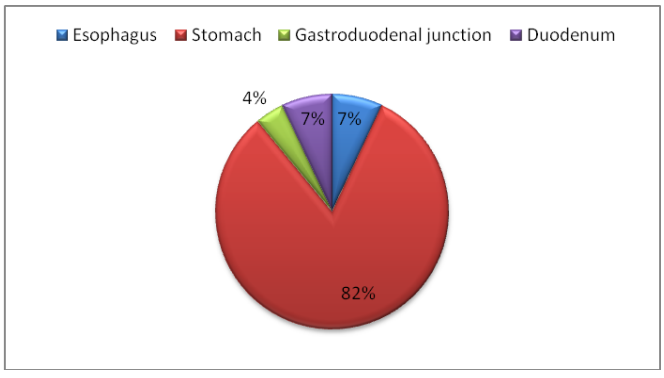


Fig 1: Distribution of biopsies specimen

### Comparison of clinical diagnosis with gold standard histopathological diagnosis

Our study showed that all clinical diagnosis is not co-related with histopathological confirmation. The detailed is described in table 1.

**Table 1: Comparison of Clinical Diagnosis with Histopathological Diagnosis**

| Clinical Diagnosis | Histopathological Diagnosis | | | | | | |
|---|---|---|---|---|---|---|---|
| | Chronic Gastritis | Dysplasia | Chronic gastritis with Intestinal Metaplasia | Squamous cell carcinoma | Adenocarcinoma | Inadequate sample | Total |
| Gastritis | 22(81.5%) | 1(3.7%) | 1(3.7%) | 0 | 2(7.4%) | 1(3.7%) | 27 |
| Duodenitis | 2(50.0%) | 0 | 1(25%) | 0 | 1(25%) | 0 | 4 |
| Mass lesion | 13(39.4%) | 9(27.3%) | 5(15.2%) | 1(3.0%) | 5(15.2%) | 0 | 33 |
| Others | 20(55.6%) | 6(16.7%) | 5(13.9%) | 0 | 5(13.9%) | 0 | 36 |
| Total | 57 | 16 | 12 | 1 | 13 | 1 | 100 |

### Correlation of endoscopic findings with histopathological diagnosis

The detailed correlation of endoscopic findings with histo-pathological examination are described in table 2

**Table 2: Correlation of endoscopic finding with histopathological diagnosis**

| Endoscopic Findings | Histopathological diagnosis | | | | | | |
|---|---|---|---|---|---|---|---|
| | Chronic gastritis | Dysplasia | Chronic gastritis with Intestinal Metaplasia | Squamous cell carcinoma | Adenocarcinoma | Inadeqate sample | Total |
| Normal | 4(66.7%) | 1(16.7%) | 0 | 1(16.7%) | 0 | 0 | 6 |
| Ulcerative | 23(63.9%) | 6(16.7%) | 3(8.3%) | 0 | 4(11.1%) | 0 | 36 |
| Polypoidal | 12(41.1%) | 6(20.7%) | 4(13.8%) | 0 | 6(20.7%) | 1(3.1%) | 29 |
| Infiltrative | 18(62.1%) | 3(10.3%) | 5(17.2%) | 0 | 3(10.3%) | 0 | 29 |
| Total | 57 | 16 | 12 | 1 | 13 | 1 | 100 |

Helicobacter pylori are the major cause of chronic gastritis. Here we studied the association of H. pylori with histopathological diagnosis (Table 3).

**Table 3: Association of Helicobacter pylori with Histopathological diagnosis.**

| Histopathological findings | Number | Helicobacter pylori | |
|---|---|---|---|
| | | Present | Absent |
| Chronic Gastritis | 57 | 14(24.6%) | 43(75.4%) |
| Dysplasia | 16 | _ | 16(100%) |
| Chronic gastritis with Intestinal Metaplasia | 12 | 2(16.7%) | 10(83.3%) |
| Adenocarcinoma | 13 | _ | 13(100%) |
| Squamous cell carcinoma | 1 | | 1(100%) |
| Inadequate sample | 1 | _ | _ |
| Total | 100 | 16 | 63 |

## Photographs

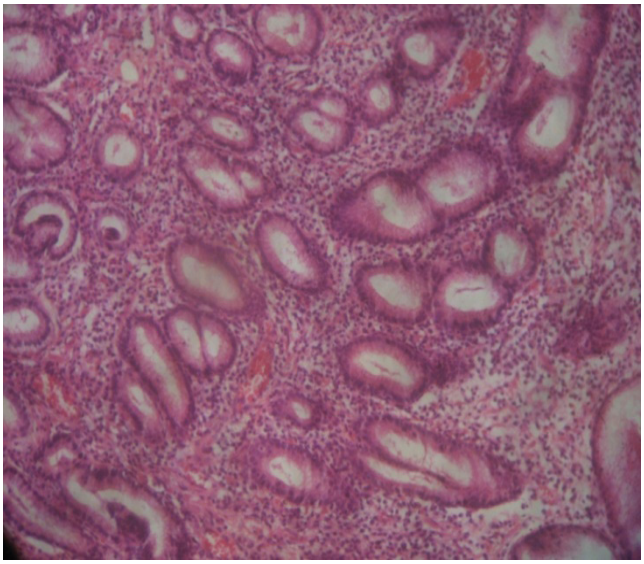

Fig 2: Chronic gastritis of body of stomach( H& E, x 200)

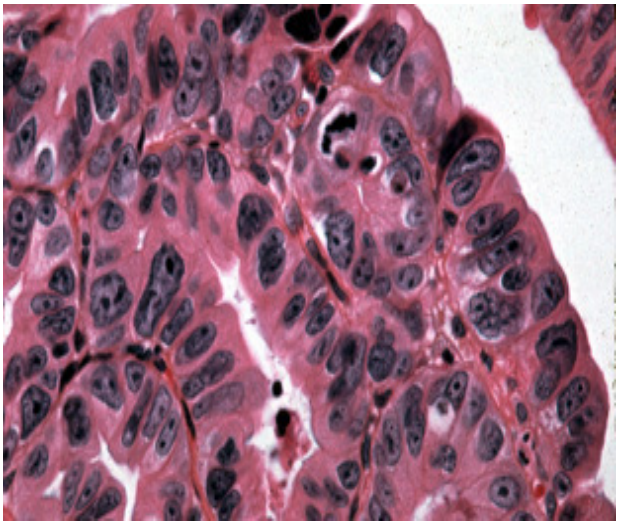

Fig 3: Severe dysplasia of stomach ( H &E x 400)

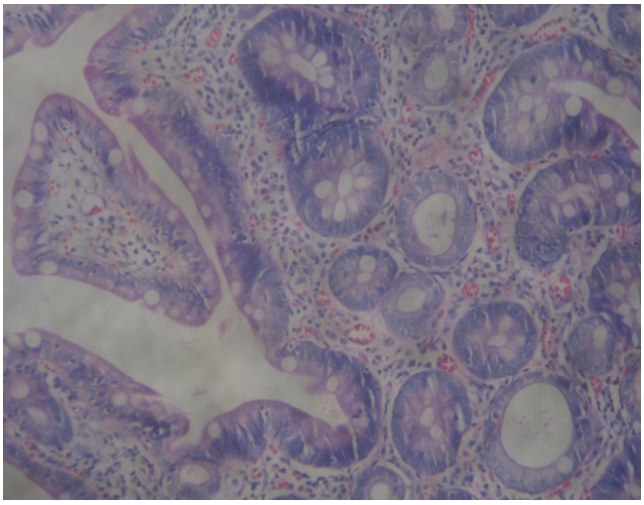

Fig 4:Chronic gastritis with intestinal metaplasia showing goblet cells(H& E x

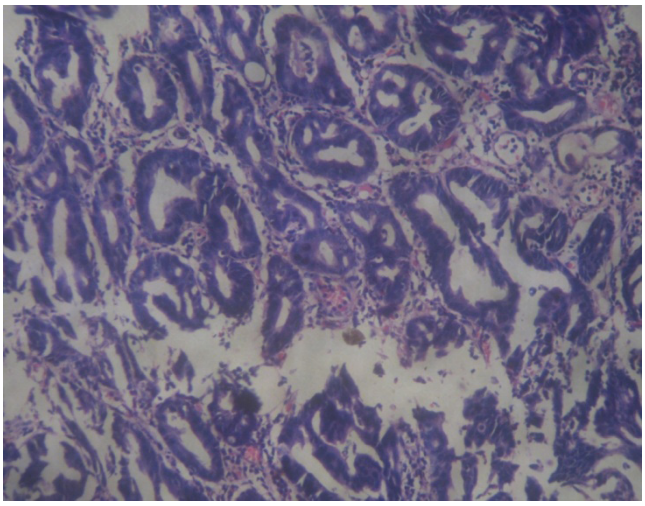

Fig no 5: Well differentiated adenocarcinoma of stomach (H & E x 200)

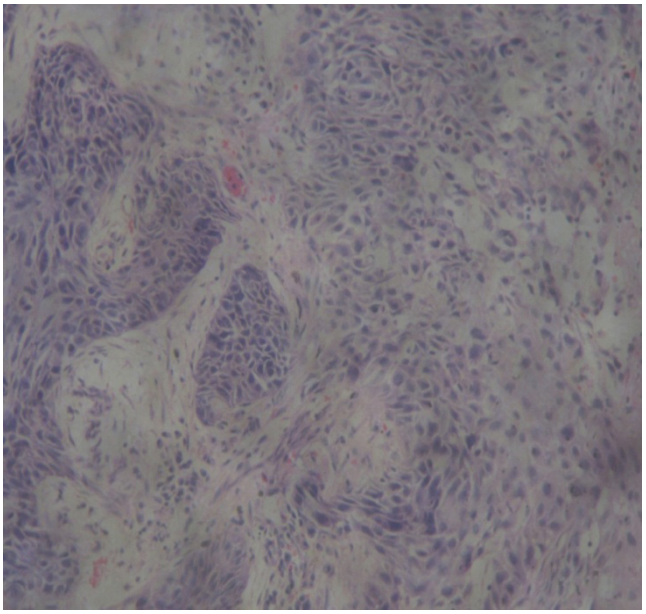

Fig no 6: Squamous cell carcinoma of esophagus (H&E x 200)

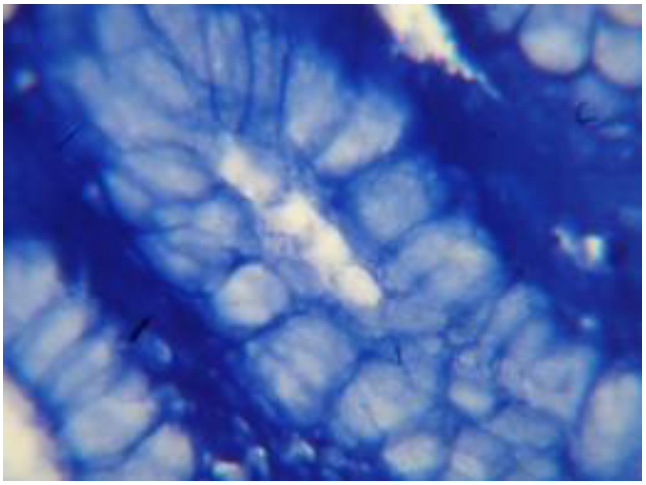

Fig 7: H.pylori in Giemsa(MGGx 1000)

## DISCUSSION

Our study aimed to find out the histopathological pattern of endoscopic biopsy. In this study, a total number of 100 endoscopic biopsies from upper gastrointestinal tract. We had 7 biopsies from esophagus, 82 from stomach, 4 from gastroduodenal junction and 7 fromduodenum.

Male to female ratio of these lesions in the present study was 1:1 which was similar as study done by S. Sharma et al., 2015(3).The age ranged from 25 to 85 years with a mean age is 56.52% and similar study was done by SMJ Islam et al [4].

According to our study, endoscopically normal findings showed chronic gastritis 4 out of 6, dysplasia 1 out of 6 and squamous cell carcinoma 1 out of 6 which was supported by Melish, Marian E MD et al.[5], which showed normal gastroscopic appearance of stomach having 13% chronic gastritis by histopathological findings, this might be due to some normal looking mucosa might have some pathological changes that only microscope could detect.

Twenty seven cases were diagnosed as gastritis clinically. Among them, 22(81.5%) had also diagnosed chronic gastritis by histopathological examination, which is supported by Kazi JI et al and K Pailoor et al (6,7) which showed maximum number of clinically diagnosed gastritis as chronic gastritis by histopathological examination. 2 cases (7.4%) had adenocarcinoma and one case (3.7%) had dysplasia and one case (3.7%) had chronic gastritis with intestinal metaplasia.

Among 33 cases suspected for malignancy clinically, were diagnosed as chronic gastritis 13 cases (39.4%), nine cases (27.3%) as dysplasia,five cases (15.2%) as chronic gastritis with intestinal metaplasia, 1case (3.0%) as squamous cell carcinoma and five cases (15.2%) as adenocarcinoma.

Among 36 cases of clinically non specific diagnosis, 20 cases(55.6%) had chronic gastritis ,six cases(16.7%) had dysplasia, five cases (13.9%) had chronic gastritis with intestinal metaplasia and five cases(13.9%) had adenocarcinoma. There were no statistically significant correlation between clinical and histological diagnosis i.e. p-Value is 0.215. This variation might be due to the study conducted on different population, misinterpretation during endoscopic biopsy by histopathologist, sampling error during the biopsy between the actual site biopsied and the endoscopic abnormality.Sharma S et al.showed good correlation in the cases of carcinoma in where 17 cases were diagnosed endoscopically as gastric carcinoma correlated histopathologically as gastric adenocarcinoma[3].

According to our study, 57 (57%) had non neoplastic condition, 28 (28%) had premalignant condition i.e. 16 had dysplasia and 12 had chronic gastritis with intestinal metaplasia. High number of non neoplastic condition(Inflammatory condition) arises due to habitual condition like chronic alcoholism, spicy foods intake, chronic smoker etc(8). Chronic gastritis is the commonest condition among non neoplastic condition, which is supported by Thapa R et al. and Kothari SL et al. [1,2.]

Our study showed 16 cases had dysplasia having 13 cases from stomach , 1 case from esophagus and 2 cases from duodenum .Premalignant lesions, histologically evident as dysplasia, were seen in 9 cases i.e. 5 cases from oesophagus and 4 cases from stomach [2].

Chronic gastritis and intestinal metaplasia are presumed to be an important stages in the development of gastric adenocarcinoma. According toZullo A et aI. intestinal metaplasia was recognized as a precancerous lesion of gastric cancer increasing risk by 6 fold (9). In our study, 12 cases (12%)of intestinal metaplasia were diagnosed.

Due to therapy for H. Pylori eradication there could be a negative H. pylori gastritis or failure to see H.pylori in the tissue specimens. Our study showed,H.pylori positive gastritis was seen in 14 (24.6%) cases which is supported by Bumpenboon W et al. i.e. 23%(10). but contrast with Qureshi et al. i.e15.5% [13]. Sites were common in antrum and body. H. pylori prior eradication helps in healing of gastritis, prevention of further H. pylori-induced genetic damage, development of atrophic gastritis and gastric cancer [15,16]

Patients with oesophageal carcinoma presented between 8th – 9th decades of life[11]. Our study diagnosed, 1 case had oesophageal carcinoma diagnosed as squamous cell carcinoma.

Our study showed 13 cases of malignant lesion at stomach. Smoking, alcohol consumption, dietary factors and social habits have been proposed as risk factors for gastric cancer[14.] In present study the youngest patient i.e. 30 years female had well differentiated and oldest patient of 81 years female had diffuse adenocarcinoma. In India , Nepal , Pakistan , Bangladesh and Bhutan concluded that Nepal had the highest and Pakistan the lowest number of gastric cancers[15]. In the Western part of Nepal stomach cancer is the third leading cancer among males and fourth most common malignancy in females[16].

Our study showed, there is no any significant relation between age and gastric cancer, which is supported by Qureshi NA et al.[11].

Among 36 cases of ulcerative lesion through

endoscopic findings, histologically 23 cases had non neoplastic lesion, 9 cases had premalignant lesion and 4 cases had neoplastic lesion.In study done by M Jayshree M.S. et al.,among 31 cases show 23 cases non-neoplastic and 7 cases neoplastic[17]. Our study showed, 29 cases of polypoidal lesion through endoscopy. Among 29 cases, 12 cases of non neoplastic, 10 cases of premalignant and 6 casesof malignant and one case having inconclusive. In study done byM Jayshree M. S. et al., among 7 cases ,4 cases show non-neoplastic and 3 cases show neoplastic[17].

Among 29 cases of infiltrative lesion, 18 had non neoplastic, 8 had premalignant and 3 had malignant lesion.In study done by M JayshreeM.S. et al among 8 cases of infiltrative lesion all show neoplastic[17].

## CONCLUSION

Endoscopic examination and biopsy is a convenient procedure for accurate objective assessment of patients with upper gastrointestinal symptoms. In conclusion,mostly non-neoplastic and neoplastic lesions are reported in the present study. Most common site of upper GIT endoscopic biopsy is from stomach. Incidence of non-neoplastic lesion is higher than neoplastic lesion. The most common malignancy is adenocarcinoma of the stomach The second most common malignancy is squamous cell carcinoma .

### Ethical Approval

This research was approved by the Institutional Review Committee of Pokhara Academy of Health Sciences, Nepal Reference number "8.2077/078" was obtained after submitting and presenting the proposal to the committee.

### Competing interests

The authors declare that, they have no any competing interests.

### Acknowledgements

The authors wish to thank the staffs of Department of pathology, Pokhara Academy of Health Sciences for their working environment for this research.

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