

# Clinico-Pathological Study of Endoscopic Gastric Biopsies

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## ABSTRACT

**Introduction:** Gastric disorders are one of the most commonly encountered problems in clinical practice with a high degree of morbidity and mortality. A variety of disorders inflammatory and neoplastic lesions can affect the stomach. Endoscopy is widely regarded as the most useful diagnostic test and a definitive diagnosis of gastric disorders rests on the histopathological confirmation and is the basis for planning proper management. Gastric carcinoma is a common cancer remaining an important public health burden worldwide especially in developing countries.

**Aims and Objectives:** To determine the spectrum of histopathological lesions of stomach and to establish histopathological examination of endoscopic biopsies as an effective tool in the proper diagnosis and management of gastric lesions.

**Material and Methods:** A prospective study was conducted on gastric endoscopic biopsies and histopathological evaluation was done in a private diagnostic centre in Karimnagar.

**Results:** Male predominance was noted in gastric lesions. In non-neoplastic lesions chronic gastritis was most common, followed by hyperplastic polyps. In neoplastic lesions, adenocarcinoma was most common followed by signet ring cell carcinoma. Commonest site of biopsy was pylorus followed by cardia of stomach.

**Conclusion:** Endoscopy followed by histopathological examination play an important role in the diagnosis and management of gastric lesions.

**Keywords:** Gastric biopsies, endoscopy, adenocarcinoma.

## INTRODUCTION

The upper gastrointestinal flexible fiber-optic endoscope was first used in 1968 and proved to be a major breakthrough in the diagnosis of gastrointestinal lesions.<sup>[1]</sup> It also offers the opportunity for biopsy of neoplastic and non- neoplastic lesions.<sup>[2]</sup> It is a simple , safe and well tolerated procedure with direct visualisation of the pathological site and biopsy leading to early detection of pathological changes and therefore helps to start appropriate treatment.<sup>[3]</sup>

Endoscopic biopsy examination followed by histopathological assessment is a convenient procedure and current gold standard for accurate objective assessment of patients with symptoms of upper gastrointestinal tract.<sup>[4]</sup>

There is a wide range of pathological lesions which may affect upper GI tract like infectious diseases, inflammatory disorders, mechanical, toxic and physical reactions including radiation injury and neoplasms.<sup>[5]</sup> So any patient experiencing the upper abdominal symptoms like

pain or dyspepsia is advised to have endoscopic examination followed by histology.

Endoscopic biopsies may also detect gastric mucosal lesions at an early stage including gastric atrophy, intestinal metaplasia and dysplasia, so that progression of these lesions to invasive cancer is prevented.<sup>[6,7]</sup>

Gastric carcinoma is the second leading cause of cancer deaths.<sup>[8]</sup> It is a common cancer in India with a high incidence in south India.<sup>[9]</sup> The cause of gastric carcinoma is multifactorial with both inherited predisposition and environmental influence. They occur in the older age group, the incidence rising progressively with age with a peak between 50-70 years, males are affected more than females.<sup>[8]</sup> It is extremely rare below the age of 30 years, the median age at diagnosis is 62 years.

## AIMS AND OBJECTIVES

- To determine the spectrum of histopathological lesions of stomach
- To establish histopathological examination of endoscopic biopsies as an effective tool in the proper diagnosis and management of gastric lesions.

## MATERIAL AND METHODS

A prospective study was conducted over a period of one year i.e from January 2017 to December 2017 on gastric endoscopic biopsies and histopathological evaluation was done in a private diagnostic centre in Karimnagar. Patients clinically diagnosed to have upper G.I lesion underwent endoscopic examination and biopsies were taken from the pathological site. The demographic data like age, sex, presenting symptoms, site of biopsy and endoscopic findings were recorded.

All tissues were fixed in 10% formaldehyde, routinely processed and embedded in paraffin wax. Four micron thick sections were cut on rotary microtome and stained with haematoxyline and eosin. Special stains like Giemsa were done in H. Pylori suspected cases. Immunohistochemistry was done in diagnostically difficult neoplastic lesions. Microscopic evaluation was done and the lesions were categorised into inflammatory, ulcerative, benign and malignant neoplasms. Malignant tumors were classified according to the latest WHO

classification.

## RESULTS

A total of 140 gastric endoscopic biopsy samples received during the period were included in the study. Age of the patients ranged from 19-80 years. Male: female ratio was 2.1:1. Commonest site of gastric biopsy was pylorus followed by body, cardia and fundus.

Out of 140 biopsies from stomach, 63(45%) revealed inflammatory lesions, in that 44 cases of chronic gastritis and 19 cases of gastric ulcer. This was followed by benign polyps 32(22.8%), which was comprised of 31 hyperplastic polyps and 1 fundic gland polyp.

1 case of gastric xanthoma (0.7%) and 1 case of well differentiated neuroendocrine tumor (0.7%) was also reported in our study.

Out of 44 cases of chronic gastritis, H.Pylori was present in 6 cases (13.63%), caseating granulomas were observed in 1 case (2.27%). Chronic gastritis was associated with intestinal metaplasia in 13 cases (29.5%).

**Table 2: Spectrum of gastric lesions in endoscopic biopsies**

Type of lesion	No. of cases	Percentage
Chronic gastritis	24	17.14%
CG with intestinal metaplasia	13	9.28%
CG with H.Pylori	6	4.28%
CG with tuberculosis	1	0.714%
Gastric ulcer	19	13.56%
Hyperplastic polyp	31	22.13%
Fundic gland polyp	1	0.714%
Xanthoma	1	0.714%
Well differentiated neuroendocrine tumor	1	0.714%
Adenocarcinoma	37	26.4%
Signet ring cell carcinoma	4	2.85%
Mucinous carcinoma	1	0.714%
Papillary carcinoma	1	0.714%

**Table 3: Age incidence of gastric carcinomas**

Age group	No. of cases	Percentage
30-39	2	4.65
40-49	10	23.25
50-59	12	27.9
60-69	14	32.55
70-79	4	9.3
80-90	1	2.32

**Table 1: Site of gastric biopsy**

Site of lesion	No. of cases	Percentage
Pylorus	94	67%
Body	25	17.5%
Cardia	16	11.4%
Fundus	5	3.5%

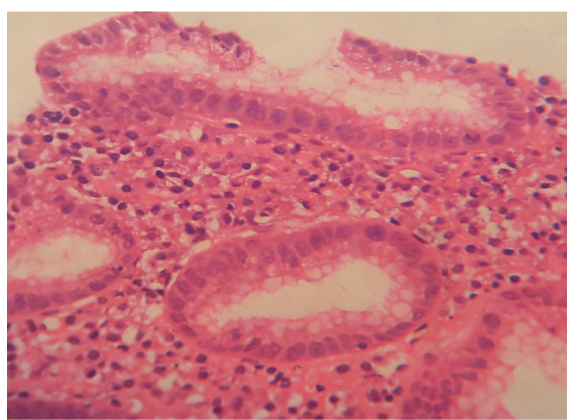


Figure 1: H.Pylori gastritis, H&E, x 400

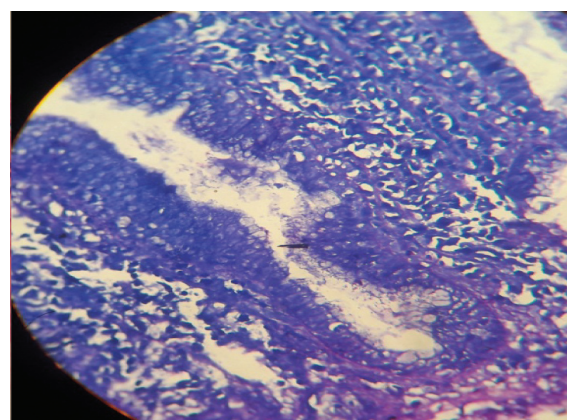


Figure 2: H.Pylori gastritis, Giemsa , x400

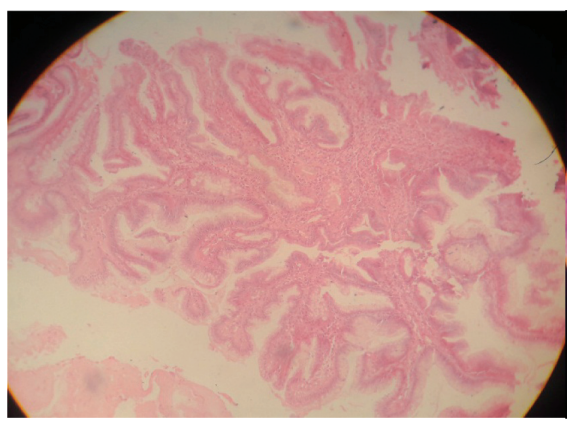


Figure 3: Hyperplastic polyp

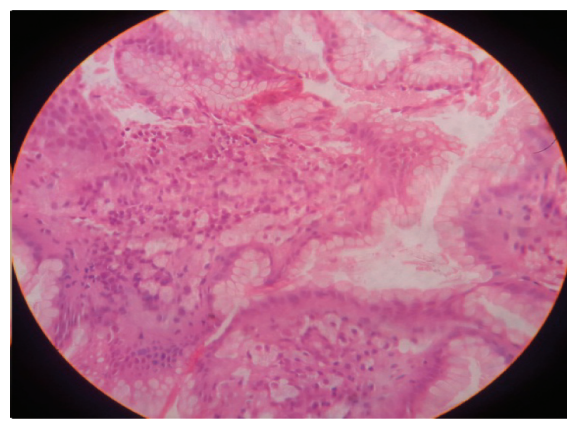


Figure 4: Gastric Xanthoma

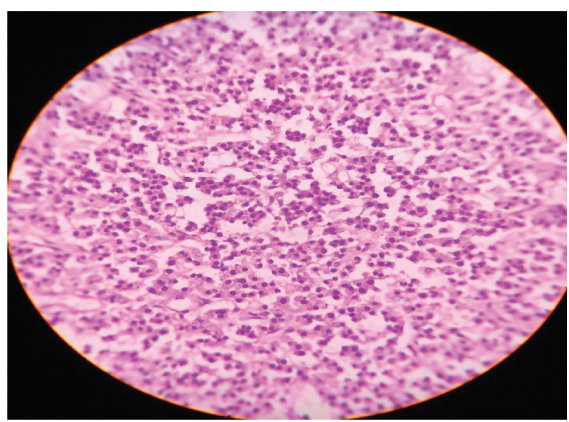


Figure 5: well differentiated neuroendocrine tumor

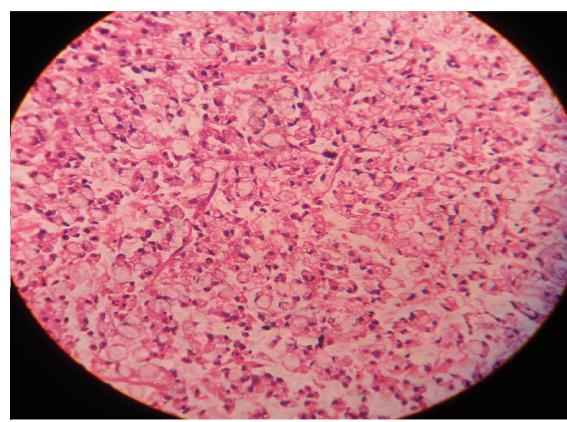
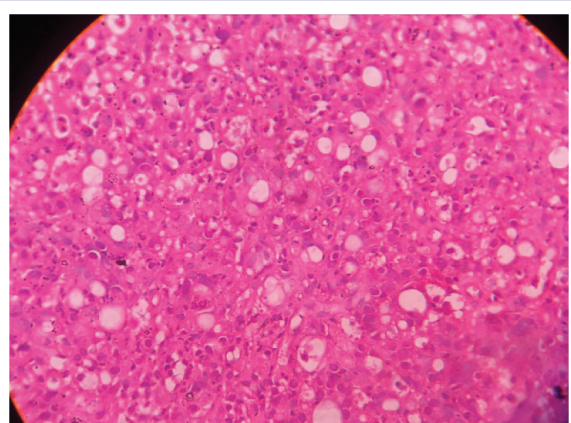
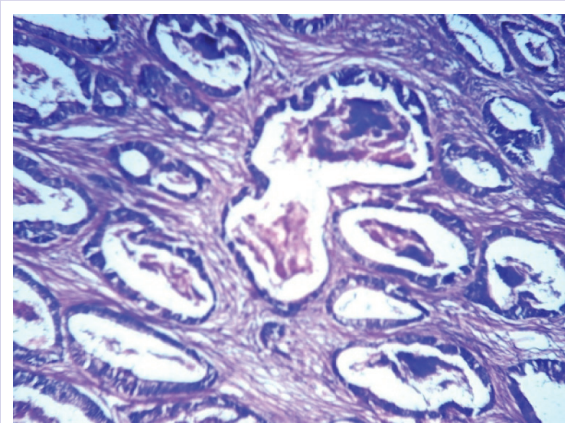


Figure 6: Signet ring cell carcinoma





**Figure 7: Poorly differentiated adenocarcinoma**



**Figure 8: Moderately Differentiated Adenocarcinoma**

Out of 43 malignant lesions of stomach, Female: Male ratio was 2:1. Age of the patients ranged from 34-80 years. Adenocarcinomas were most commonly seen in the seventh decade followed by sixth decade most common symptoms were dyspepsia, abdominal pain, abdominal mass, vomiting and other non-specific symptoms.

On histopathological examination, 37 cases (86%) were adenocarcinomas (including intestinal and diffuse type of adenocarcinoma of the Lauren's classification), in which 25 were moderately differentiated, 11 were poorly differentiated. 4 cases (9.3%) were of signet ring cell type, 1 case (2.32%) of mucinous carcinoma and 1 case (2.32%) of papillary carcinoma.

## DISCUSSION

The present study was conducted on 140 cases of gastric endoscopic biopsies from January 2017 to December 2017. A M:F ratio was 2.1:1. A similar male predominance was observed by Shenek MM et al<sup>[10]</sup> which they attributed to greater degree of exposure of male subjects to various risk factors and greater attendance of male patients to the OP department as compared to female patients. A predominance of gastric biopsy was found between the age group of 41-60 years, which showed a similar trend to other reported studies.<sup>[10]</sup>

Of the 140 biopsies, 63(45%) were non neoplastic lesions where as 43(30.7%) were malignant neoplasms. The most common non neoplastic lesion observed was chronic gastritis, followed by hyperplastic polyps. There were 19 cases of gastric ulcer. The distribution of non -neoplastic lesions and malignant neoplasms correlated with similar findings made by Rupendra et al<sup>[11]</sup>

Few cases of chronic gastritis also showed H.Pylori infection which correlated with results of study by Afzal et al.<sup>[12]</sup> One case showed caseating granulomas in lamina propria.

Cancer of the antro-pyloric region are most common in high risk regions (i.e. Asia, Eastern Europe). In this study, antro-pyloric site was the most common site which is comparable to another study.<sup>[8]</sup> The microscopic types reported vary in different studies.<sup>[8,13]</sup> Ulcerated type was the most common type in our study.

Several classification systems have been proposed, of which the WHO and Lauren classification are most commonly used. WHO categorises the histologic patterns into 5 subtypes: Adenocarcinoma (intestinal and diffuse), papillary, tubular, mucinous and signet ring cell type.<sup>[8]</sup> The WHO system assigns grades (well, moderately and poorly differentiated) based on the degree of resemblance to metaplastic intestinal tissue.

Adenocarcinoma was the most common histologic type in our study. Majority of gastric adenocarcinomas were moderately differentiated.

Histopathological examination with routine H&E stain is sufficient to make the diagnosis. But special stains like Giemsa were done to confirm the diagnosis of H.Pylori gastritis.

Immunohistochemistry with CK and CD 45 were done to differentiate poorly differentiated carcinoma and Non-Hodgkin's Lymphoma.

## CONCLUSIONS

Endoscopy with biopsy is a useful technique for the diagnosis of gastric carcinoma prior to surgery and the material obtained is adequate to aid in the classification of the tumors as well as in the grading.

## CONFLICT OF INTEREST :

The authors declared no conflict of interest.

**FUNDING :** None

## REFERENCES

1. Blackstone Mo. *Endoscopic interpretation normal and pathological appearance of the gastrointestinal tract*. Reven Press NewYork, 1984; 1:13-15.
2. Roshni K, Horakerappa MS, Karar A, Mangala G. A study on histopathological spectrum of upper gastrointestinal tract endoscopic biopsies. *Int J Med Res Health Sci*. 2013; 2(3):418-424.
3. Sandhya Panjetha, Gulia et al. Interpretation of upper gastrointestinal tract endoscopic mucosal biopsies. A study conducted in teaching hospital in Puducherry, India. *Int J Med Health Sci*. 2012; 1(3):13-25.
4. Pailoor K, Sarpangala MK, Naik RCN. Histopathologic diagnosis of gastric biopsies in correlation with endoscopy- A Study in a tertiary care centre. *Adv Lab Med Int*. 2013; 3(2):22-31.
5. Rosai J In: *Rosai and Ackerman's surgical pathology*. 9<sup>th</sup> ed. St.Louis: Mosby; 2004:648-651.
6. Barr H. Endoscopic screening for upper gastrointestinal malignancy. Westboy D, Lombard M. *In therapeutic gastrointestinal endoscopy*. Martin dumsits. 2002:54-56.
7. Cecilia M, FenglioPreiser, Amy E. Noffsinger. *Gastrointestinal Pathology: An Atlas and Text*. 3<sup>rd</sup> ed. Lippincott Williams and Wilkins; 2007:64-65.
8. Hamilton SR, Aaltonen LA: World Health Organisation classification of tumors. *Pathology and Genetics of tumors of the digestive system*. IARC Press: Lyon; 2000:38-46.
9. Dikshit RP, Mathur G, Shrayu M, Yeole B. Epidemiological review of gastric cancer in India. *Indian J Med Paediatr Oncol*. 2011; 32(1): 3-11.
10. Shennek MM, Tarawnah MS, AlSheik. Upper gastrointestinal diseases in symptomatic Jordanians: A Prospective study. *Ann Saudi Med* 1997; 17(4):471-474.
11. Rupendra T, Mamta L, Pradeep Y, Prakash K, Choodamani A, Kamana S. Histopathological study of endoscopic biopsies. *J Nepal Med Assoc*. 2013; 52(190): 354-6.
12. Afzal S, Ahmad M, Mubasik A, Saeed F, Rafi S, Saleem N et al. Morphological spectrum of gastric lesions- endoscopic biopsy findings. *Pak Armed Forces Med J*. 2006; 56(2):143-9.
13. Plummer JM, Gibso TN, McFarlane MEC, Hanchard B, Marton A, Mc Donald AH. Clinicopathological profile of gastric carcinomas at the university Hospital of the West Indies. *West Indian Med J*. 2005; 54:364-8.