

STUDY OF GASTRIC BIOPSIES WITH CLINICOPATHOLOGICAL CORRELATION – A TERTIARY CARE CENTRE EXPERIENCE

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ABSTRACT

BACKGROUND

Gastric disorders are one of the most commonly encountered problems in clinical practice. A variety of disorders can affect the stomach and gastrointestinal tract. The definitive diagnosis of gastric disorders rests on the histopathological confirmation and is one of the basis for planning proper treatment.

OBJECTIVES

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

MATERIALS AND METHODS

A retrospective study was conducted on the gastric endoscopic biopsies and the histopathological assessment was done at the Department of Pathology, Osmania Medical College and Teaching Hospital from November 2014 to October 2015.

RESULTS

Of the total 87 cases of gastric biopsies, majority of cases were of male gender with a male-female ratio of 2.4:1. Our study showed a poor correlation between endoscopic and histopathological evidence of inflammation in the stomach. Four cases were diagnosed as intestinal metaplasia which were diagnosed as ulcer and erosion endoscopically. Out of 23 number of cases diagnosed endoscopically as ulcer, only one case was confirmed histopathologically.

Our study showed good correlation in the cases of carcinoma. All 38 cases diagnosed endoscopically as gastric carcinoma correlated histopathologically as gastric adenocarcinoma. Majority of carcinoma cases showed ulcerating fungating growth followed by ulceroproliferative growth.

CONCLUSION

In our study, the commonest site for endoscopic biopsy was from the stomach in which fundus region and antral region account the most. Most common neoplasm of the stomach was adenocarcinoma. Endoscopy is incomplete without biopsy and histopathology is the gold standard for the diagnosis of endoscopically detected lesions. We, therefore, conclude that endoscopy is incomplete without biopsy and so the combination of methods provides a powerful diagnostic tool for better patient management.

KEYWORDS

Endoscopic Biopsy, Histopathology, Adenocarcinoma, Helicobacter Pylori, Peptic Ulcer.

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INTRODUCTION: Human gastrointestinal tract which is long and tortuous is an common site for lesions like congenital, inflammatory and neoplastic conditions.^{1,2,3}

In the upper gastrointestinal tract most commonly encountered problem in the clinical practice is gastric lesions with a high degree of morbidity and mortality and endoscopic biopsy is common procedure performed in the hospital for a variety of benign and malignant lesions.⁴

A wide variety of infections, inflammatory disorders, vascular disorders, mechanical conditions, toxic and physical reactions including radiation injury and neoplasm can be cited in the oesophagus and stomach.⁴ To arrive at diagnosis of different lesions, endoscopic and histopathology are complementary.^{5,6}

Histopathological study of biopsy specimens are used to confirm endoscopic diagnosis in suspected malignancy or to rule out endoscopically benign appearing lesion. The endoscopic biopsies are performed not only for the diagnosis of the disease but also for monitoring the course, determining the extent of a disease, as responses to therapy and for the early detection of complications.^{7,8,9,10} The aim of this study is to correlate the histopathological pattern of endoscopic biopsy with distribution of gastric lesions according to age and sex.

PATIENTS AND METHODS: A present study included eighty seven (87) endoscopic biopsies. They were taken from patients who were clinically diagnosed to have a gastric lesion needing biopsy at the Department of Gastroenterology. These gastric endoscopic biopsies were subjected to histopathological assessment at the Department of Pathology, Osmania General Hospital, during the period of November 2014 to October 2015.

Inclusion Criteria: All endoscopic biopsies of the gastric region.

Exclusion Criteria: All lesions of the mouth and pharynx and oesophagus.

Endoscopies were performed using a large channel endoscope Pentax EG-2901. Biopsy specimens were obtained with large 10 mm open span biopsy (KW2218CS). Endoscopy was done in all the patients clinically diagnosed on gross visualisation during endoscopy. Patients of both the gender, all ages, inpatients, outpatients and those with diagnostic gastric endoscopies were included in the study. The biopsy specimen was put in saline and placed on the filter paper with mucosal surface facing upwards. Then, the filter paper was immersed in 10% formalin for fixation. After adequate fixation entire tissue was routinely processed and embedded in paraffin with mucosal surfaces uppermost. Five micron thick sections were cut perpendicular to this surface and four to five sections were prepared on each slide. Each section was stained with H and E and studied microscopically. Adequacy of biopsy was assessed. An attempt was made to diagnose the lesion on gross visualisation during endoscopy and to correlate them histopathologically. Special stains were done whenever required. Tumours were diagnosed as per WHO histological classification of gastrointestinal tumours.

RESULTS: Among the 87 cases, 71.26% were male and 28.74% were females. The age and sex distribution of the study groups are shown in table 1.

Out of eight cases of erythematous patches diagnosed endoscopically, 12% were found to be normal, 25% as chronic gastritis and 63% were diagnosed Helicobacter pylori induced gastritis. Out of 23 cases which were diagnosed as gastric ulcer endoscopically, 5% were found to be normal, 34 % cases were diagnosed as chronic gastritis (Figure. 1), 35% cases were diagnosed as Helicobacter pylori induced gastritis, 5% cases were diagnosed as ulcer, 8% and 14% of cases were diagnosed as metaplasia and carcinoma (Figure. 2 & 3) respectively.

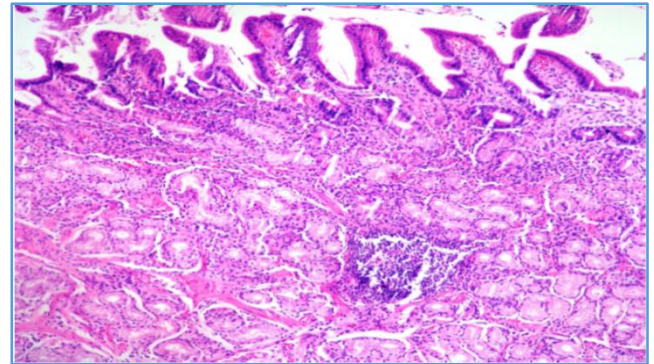


Fig. 1: Photomicrograph of Chronic Gastritis with a Lymphoid Aggregate in the Lamina Propria. (H&E, 10X)

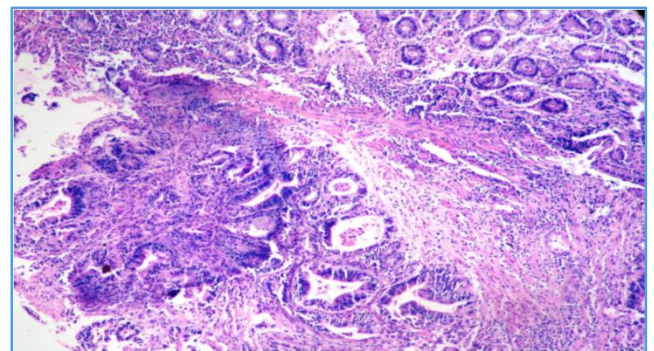


Fig. 2: Photomicrograph of Moderately differentiated Adenocarcinoma Stomach. (H & E, 10X)

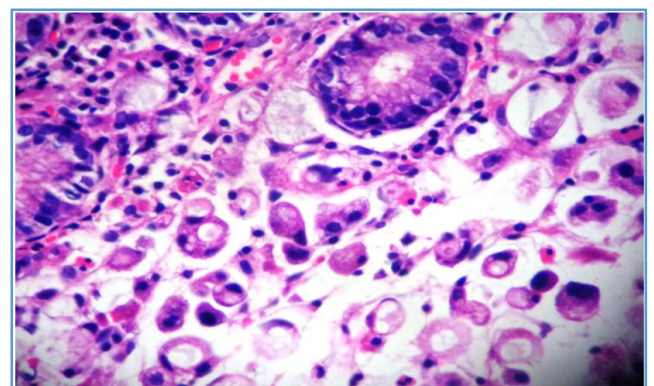


Fig. 3: Photomicrograph of Signet Ring Cell Carcinoma Stomach. (H&E, 40X)

Age (years)	Number	Male	female
10-20	01	01	00
21-30	07	05	02
31-40	09	08	01
41-50	17	10	07
51-60	21	10	11
61-70	20	18	02
71-80	12	10	02
Total	87	62(72%)	25(28%)

Table 1: Age and Sex distribution of Study Group

Similarly, among 18 cases diagnosed as erosion endoscopically, 11% were normal, 33% showed gastritis, 44% showed Helicobacter pylori induced chronic gastritis and 12% showed metaplasia. (Table 2)

Endoscopic Diagnosis	Histopathological diagnosis						Total
	Normal study	Ulcer	Gastritis	Metaplasia	Carcinoma	H. pylori Induced gastritis	
Erythema	1(12.05%)		2(25%)			5(62.05%)	8(9.19%)
Ulcer	1(4.34%)	1(4.34%)	8(34.78%)	2(8.69%)	3(13.04%)	8(34.78%)	23(26.43%)
Erosion	2(11.11%)		6(33.33%)	2(11.11%)		8(44.44%)	18(20.68%)
Growth					38(43.67%)		38(43.67%)
Total	4(4.59%)	1(1.14%)	16(18.39%)	4(4.59%)	41(47.12%)	21(24.13%)	87(100%)

Table 2: Correlation between Endoscopic and Histopathological Diagnosis

However, all 38 of the endoscopically suspected carcinoma correlated histologically as adenocarcinoma, majority of carcinoma presented as an ulcerating fungating growth on endoscopy (Table 3).

Study by McKenna and Appelman had 13 cases have observed 50% correlation between erosion and its histopathological diagnosis.¹⁴ Levy N et.al., and Calabrese C et al have shown variation in results.^{15,16} This variation could be due to the study conducted on different population, misinterpretation during endoscopic biopsy, misinterpretation by histopathologist, sampling error during the biopsy between the actual site biopsied and the endoscopic abnormality. All these studies suggest that the diagnosis of ulcer or gastritis is based on histopathological examination of gastric mucosa.^{17,18}

Endoscopic findings	Adenocarcinoma
Ulcerating fungating growth	14
Ulceroproliferative growth	12
Friable growth	10
Nodular ulceration	05
Total	41

Table 3: Endoscopic and Histopathological Findings of Gastric Carcinoma

In our study, four cases were diagnosed histopathologically as intestinal metaplasia out of which, two cases were diagnosed endoscopically as ulcers and two cases were diagnosed as erosion. Intestinal metaplasia of gastric mucosae are premalignant gastric lesions and histopathological diagnosis of these lesions could be used to identify a group at high risk for gastric carcinoma, which were similar to study conducted by Muller LB et al Joo YE et al.^{19,20} There were no cases which showed gastric atrophy similar to study conducted by Sharma et al.¹³

DISCUSSION: The endoscopic examination and gastric biopsy provides useful information which helps in diagnosis of various lesions. This study aimed toward finding a strong endoscopic and histological correlation of gastric lesions.

Out of 87 cases studied, 38 cases diagnosed endoscopically as gastric carcinoma correlated with those of histopathological diagnosis as Adenocarcinoma. Our study showed good correlation in the cases of carcinoma. Our study findings were similar to the studies conducted by Hecker et al,²¹ Sharma S. et al.¹³

In this study majority of cases were of male gender. The reason for gender ratio favouring males could be of the fact that males are exposed to more risk factors than females.^{11,12} Endoscopic biopsies with different diagnostic features such as erythema, erosions, ulcer and different areas of gastric region were examined to assess possible histological counterparts to these endoscopic findings. The presence of inflammatory cells, the severity of inflammatory process and damage to the epithelial layer were compared. The correlation between endoscopic and histological evidence of inflammation in the stomach was very poor. Out of the 23 cases with endoscopic diagnosis of ulcer only one case was histologically diagnosed as ulcer. Most of the cases with endoscopic diagnosis of erosion showed normal histological findings and rest of the cases diagnosed as H. pylori induced gastritis, Sharma S et al¹³ have similar findings.

These findings emphasise and recommend endoscopy examination and endoscopic biopsy, endoscopy examination is incomplete without biopsy and histopathology as gold standard diagnostic procedure among patients suspected for gastric carcinoma. Endoscopic biopsy and histopathological correlation eliminates the necessity for diagnostic laparotomy. In our study, major number of carcinoma cases showed grossly ulcerating-fungating growth followed by

ulceroproliferative growth, friable growth and nodular ulceration respectively. Our study is similar to the studies conducted by Pailoor K. et al, Qizibash AH et al,^{22,23} and incidence of carcinoma increased with increase of age similar to the study done by Sharma S et al.¹³

CONCLUSION: Endoscopic examination and biopsy is a convenient procedure for accurate objective assessment of patients with gastric lesions.

Our study showed better correlation with endoscopic findings in cases of adenocarcinoma. It was also observed that endoscopic diagnosis of benign gastric lesions poorly correlated with those of histopathological diagnoses. Hence proper care should be taken for processing of biopsy tissue and interpretation by the pathologist. Endoscopic examination and histopathological examination of suspected gastric lesions should go in parallel and neither of them should be a substitute of each other. Endoscopic biopsy correlation reflects important advances in understanding the biology and pathophysiology of the disease.

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