CORRELATION BETWEEN ENDOSCOPIC AND HISTOPATHOLOGICAL FINDINGS IN GASTRIC LESIONS

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ABSTRACT

INTRODUCTION: Stomach is an important site for wide variety of lesions which include congenital, inflammatory and neoplastic conditions. Helicobacter pylori(H. pylori) has been implicated in varied range of gastric lesions including Gastritis, Peptic Ulcer (PU), Gastric Adenocarcinoma and Gastric Lymphoma.

MATERIAL AND METHODS: A total of 43 gastric biopsies were studied retrospectively over a period of 5 months from March to July 2013 at Department of Pathology, Universal College of Medical Sciences Teaching Hospital, Bhairahawa.

RESULTS: Out of these 43 cases, 29 (67.4%) were male and 14 (32.6%) were female with a male to female ratio of 2.07:1. According to the endoscopic findings, out of 43 cases, 25 (58.1%) cases had Gastritis, 5 (11.63%) had Peptic Ulcer, 4 (9.30%) had gastric Carcinoma, 4 (9.30%) had Chronic Gastritis (CG) with Atrophy, 3 (6.97%) had Erosive Gastritis and 2 (4.7%) had normal mucosa. The correlation of endoscopic and histopathological diagnosis of these gastric lesions was 34.88%.

CONCLUSION: It was observed that endoscopic diagnoses of gastric lesions poorly correlated with those of histopathological diagnoses. *H. pylori* has a high prevalence in our region and is mostly associated with Intestinal Metaplasia (IM), CG and Atrophic Gastritis (AG).

KEYWORDS: Endoscopy, Gastric Biopsy, Chronic Gastritis, Atrophic Gastritis, Intestinal Metaplasia, Helicobacter pylori.

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INTRODUCTION

The advent of fibre optic endoscopy in recent year has enormously extended the diagnostic possibilities in gastroenterology.

Endoscopic appearances may be valuable in diagnosis but more accurate and detailed information results from histological examination of mucosal biopsy specimens[1]. Over the years it has been realized that the endoscopic appearances are highly suggestive but are not pathognomic and they need histological confirmation. In majority of the conditions histologicaldiagnosis is corroborative and hence for the final diagnosis a good dialogue between clinician, endoscopist, radiologist and pathologist is required[2-3].

After the discovery of *H. pylori* by Marshall and Warren in 1983 by using Warthin Starry Silver stain[4], the etiological understanding of CG and associated lesions have been revolutionized. *H. pylori* has been implicated in varied range of gastric lesions including Gastritis, PU, Gastric Adenocarcinoma and gastric mucosa-associated lymphoid tissue Lymphoma[5]. Usually, the bacteria are easily seen on well-differentiated Haematoxylin and Eosin (H&E) sections, and it is not necessary to use Giemsa, modified Steiner, or Leung[6]stains for routine diagnosis[7]. The organisms are slender, curved spirals in the superficial mucous layer, where they tend to be attached to the epithelium at the site of intercellular junctions. Occasionally, following treatment with proton pump inhibitory drugs, *H. pylori* can be present in the stomach as coccoid forms.[8]

This study tends to correlate the histomorphological pattern of gastric mucosal biopsy with distribution of gastric lesions according to age and sex with their relation to *H. pylori.*

MATERIAL AND METHODS

A total number of 43 gastric biopsies received at Department of Pathology, Universal College of Medical Sciences from the month of March to July were studied retrospectively. Patients suspected for any gastric lesions were taken up for endoscopy and biopsy was taken wherever required. Endoscopies were done using a flexible fibre optic Endoscope. The lesions were noted on gross visualization during endoscopy. Each biopsy obtained from the stomach was put into a small labelled bottle containing 10% neutral formalin and sent to the department of pathology, UCMS. Those specimens were processed and embedded in paraffin wax and were cut into sections of 5 micrometre thickness. All the slides were stained with H&E and with Giemsa stain whenever required. All the sections were reported by a consultant pathologist and reviewed by another consultant pathologist. All the statistical analysis was done using SPSS 16.0.

RESULTS

A total of 43 gastric biopsies were studied retrospectively over a period of 5 months from March to July 2013. Out of these 43 cases, 29 (67.4%) were male and 14 (32.6%) were female with a male to female ratio of 2.07:1. The age range of patients was from 21 years to 96 years with a mean age of 52.52 years. The age and sex distribution of the study is shown in Table 1.

Table 1: Age and Sex distribution of study group

Age Group	Sex of the patient		Total
	Male	Female	
21-30	2	3	5 (11.63%)
31-40	3	4	7 (16.27)
41-50	4	4	8 (18.61%)
51-60	7	1	8 (18.61%)
61-70	7	2	9 (20.93%)
>71	6	0	6 (13.95%)

Endoscopically diagnosed different gastric lesions with their male to female ratio is shown in Table II. The highest number of patients were with Gastritis followed by PU, erosion, carcinoma and normal study.

Table 2: Age and sex distribution and various endoscopic diagnosis

Endoscopic Diagnosis	Sex of the patient		Total
	Male	Female	
Normal	0	2	2 (4.7%)
Gastritis	16	9	25 (58.1%)
Atrophic Gastritis	4	0	4 (9.30%)
Erosive Gastritis	2	1	3 (6.97%)
Peptic Ulcer	3	2	5 (11.63%)
Carcinoma	4	0	4 (9.30%)

Distribution of gastric lesions in different age groups is shown in Table 3. The peak age of incidence of Gastritis was found in the fourth decade and those of PU and Gastric Carcinoma were found in the sixth decade.

Table 3: Distribution of gastric lesions as per age group

Age Group	Endoscopic Diagnosis						Total
	Normal	Gastritis	AG	EG	PU	Ca	
21-30	1	4	0	0	0	0	5
31-40	1	5	0	1	0	0	7
41-50	0	6	0	1	1	0	8
51-60	0	5	1	0	1	1	8
61-70	0	1	1	1	3	3	9
>71	0	4	2	0	0	0	6
Total	2	25	4	3	5	4	43
AG-Atrophic Gastritis, ***EG***-Erosive Gastritis, ***PU***-Peptic Ulcer, ***Ca***-Carcinoma							

The correlation between endoscopic findings with histological findings is shown in Table 4. Twenty five out of 43 cases were diagnosed as Gastritis on endoscopy. Of these, 10 were CG, 9 had IM, 4 has AG and 2 had signs of activity histologically. Out of 4 cases of Erosive Gastritis, none were found to have erosion histologically. Among 5 cases of endoscopically diagnosed AG, only 1 case showed atrophic changes on biopsy. Four cases diagnosed endoscopically as PU were mostly diagnosed as CG with IM (3 cases). However, all 4 of the endoscopically suspected Carcinoma correlated histologically as Adenocarcinoma.

Table 4: Correlation between endoscopic and histopathological diagnosis

Endoscopic Diagnosis	Histopathological Diagnosis								Total
	CG	CG + IM	CG + Activity	CG + AG	CG + Activity + AG + IM	CG + Activity + IM	Dysplasia	Carcinoma	
Normal Study	1	1	0	0	0	0	0	0	2
Gastritis	10	9	2	4	0	0	0	0	25
Erosive Gastritis	1	1	1	0	0	0	0	0	3
Atrophic Gastritis	1	1	0	1	0	1	0	0	4
Peptic Ulcer	0	3	0	0	1	0	1	0	5
Carcinoma	0	0	0	0	0	0	0	4	4
Total	13	15	3	5	1	1	1	4	43
CG-Chronic Gastritis, ***IM***-Intestinal Metaplasia, ***AG***-Atrophic Gastritis**[Chi-square = p value <0.05]**									

H. pylori was detected in 18 (41.9%) cases, which was mostly present in cases with CG with IM (55.56%) but also with CG (22.22%) , CG with AG (16.67%) and CG with Activity with IM (5.55%).

DISCUSSION

According to the endoscopic findings, out of 43 cases, 25 (58.1%) cases had Gastritis, 5 (11.63%) had PU, 4 (9.30%) had Gastric Carcinoma, 4 (9.30%) had CG with AG, 3 (6.97%) had Erosive Gastritis and 2 (4.7%) had normal mucosa. The correlation of endoscopic and histopathological diagnosis of these gastric lesions was 34.88%.Of the 25 cases diagnosed as Gastritis on endoscopy, only 10 were diagnosed histologically as CG, 9 had CG with IM (Fig. I), 4 had CG with AG and 2 had CG with activity. Only 40% of the cases diagnosed endoscopically as CG correlated with the histopathological diagnosis. This finding is similar to that of study of Levy N. ET Al[9]. Their study showed 50% correlation between endoscopically and histopathologically diagnosed CG and emphasized that endoscopy alone should not be relied upon in the diagnosis of gastritis.

Among 5 cases diagnosed as PU on endoscopy, 3 had CG with IM, 1 had dysplasia and 1 had CG with IM with activity. All 4 cases diagnosed endoscopically as Gastric Carcinoma correlated histologically as Gastric Adenocarcinoma (Fig. II). This correlation is supported by the study of Hecker etal.[10] They recommended endoscopy and biopsy as valuable diagnostic procedures in the investigation of patients suspected of having gastric carcinoma. Used together they can eliminate the necessity for diagnostic laparotomy.

H. pylori was present in 18 cases and was most prevalent with IM (55.56%). Four cases of CG, 3 cases of CG with GA and 1 case of CG with IM with activity were associated with *H. pylori*.According to Kim N. ET. Al, *H. pylori* infection is the most important risk factor of IM and AG, which support the findings of our study. H. pylori first causes non-atrophic gastritis which may evolve to AG and IM and finally to dysplasia and Adenocarcinoma. AG and IM are premalignant gastric lesions and endoscopic diagnosis of these premalignant lesions could be helpful to describe a group at high risk for Gastric Cancer.[11-12]

Out of 6 cases which were thought to have H. pylori associated mucosal changes on endoscopy, only 1 was positive for H. pylori on biopsy. Moreover, out of 20 cases thought to be spared of *H. pylori* associated endoscopic mucosal changes, 17 cases were found to be positive. As stated by Calabrese ET. Al., mucosal nodularity showed the highest positive predictive value in detecting the *H. pylori* presence. The single endoscopic features are poorly correlated with histologic changes and *H. pylori* status[13]. Except for the absence of rugae and visible vessels in the gastric corpus, macroscopic features as observed during gastroscopy are of very limited value in the evaluation of whether or not gastritis or *H. pylori* infection are present.And, it must be emphasized that the diagnosis of gastritis should be based on histological examination of gastric mucosa.[14]

Figure 1: H&E section showing Intestinal Metaplasia in the gastric biopsy. (X100)

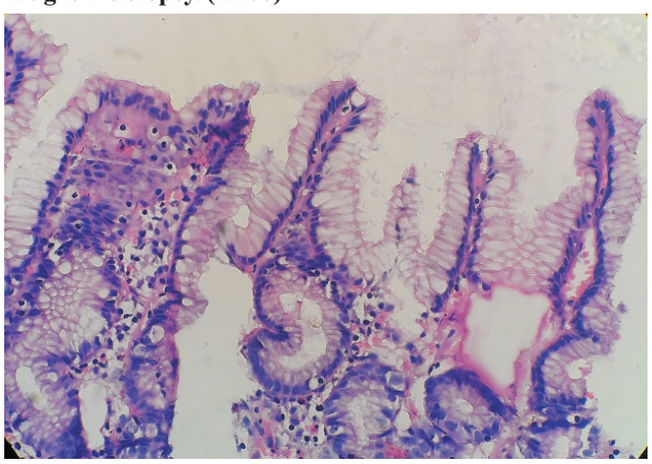
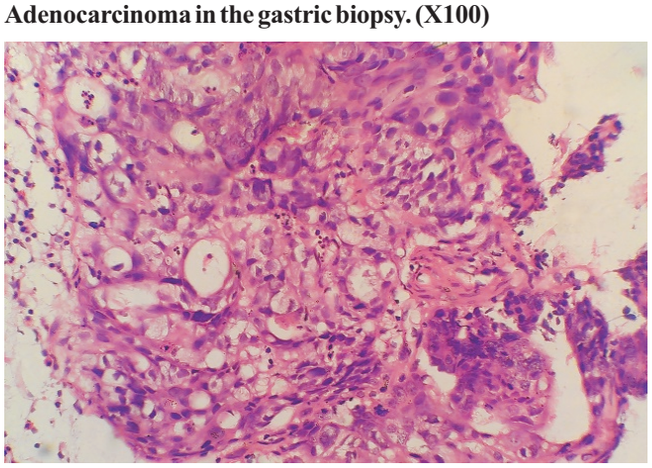


Figure 2: H&E Section showing Moderately Differentiated Adenocarcinoma in the gastric biopsy. (X100)



CONCLUSION

It was observed that endoscopic diagnoses of gastric lesions poorly correlated with those of histopathological diagnoses. *H. pylori* has a high prevalence in our region and is mostly associated with IM, CG and AG. As IM and AG are premalignant lesions, their early detection and intervention is essential. Endoscopic examination and biopsy is a convenient procedure for accurate objective assessment of patients with gastric symptoms. Endoscopy is incomplete without biopsy and histopathology is the gold standard for the diagnosis of endoscopically detected lesions. Endoscopic examination and histopathological examination of suspected gastric lesions should go parallelly and neither of them should be a substitute of each other.

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