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# CLINICOPATHOLOGICAL STUDY OF GASTRIC BIOPSIES

Pathology

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## ABSTRACT

**Background:** Stomach is an important site for variety of lesions especially malignant tumours. Gastric biopsies along with clinical profile of cases play an important role in the diagnosis of gastric neoplasm and therefore aids in early management. **Aim and Objectives:** To study the histopathology of Gastric biopsies and correlate them with clinical presentation, age, sex and to differentiate them between neoplastic and non neoplastic lesions. **Materials and Methods:** The prospective study was done in the Department of Pathology Geetanjali Medical College and Hospital, Udaipur between 1stJanuary 2019 to 30thJune 2020. A total of 83 gastric biopsies were included in the study and were analyzed along with their clinical profiles. **Results:** A total of 83 gastric biopsies were included in the study. Most commonly affected age group was 50-69 years with 41 patients (49.40%) followed by 40-49 years with 14(16.87%). Out of 83 cases, 58 (69.88%) were males & 25 (30.12%) were females, 26 (31.33%) cases were non neoplastic & 57 (68.67%) cases were neoplastic.**Conclusion:** The gastric biopsy not only permits exact diagnosis of specific entity but also helps to plan for early medical or surgical therapy. The histopathological study detects mucosal lesions at an early stage especially atrophy, metaplasia and dysplasia as to prevent progress of these lesions to invasive cancer.

## KEYWORDS

Gastric biopsies, H. pylori, Adenocarcinoma.

## INTRODUCTION

Upper Gastrointestinal disorders are one of the most commonly encountered problems in the clinical practice with high degree of morbidity and mortality and biopsy is common procedure performed in the hospitals for variety of benign and malignant lesions.[1] Gastric carcinoma is the second leading cause of deaths worldwide.[2]

Gastric carcinoma is the second most common tumor in the world.[3] The incidence rate of gastric cancer is four times higher in Southern India compared with Northern India. The highest incidence in both sexes is reported from Chennai and the lowest from Barshi. The incidence varies among different religious groups also. In Kashmir, Muslims have a higher incidence compared with Hindus, whereas the reverse trend is seen in Mumbai. [4]

In the stomach great concern is to pick the early gastric lesions on histopathology of the gastric mucosal biopsies (early gastric cancer) that does not extend beyond the mucosa or submucosa even though there may be lymph node metastasis in contrast to the invasive gastric carcinoma which extends beyond muscularis propria where the prognosis is poor.[5]

Upper Gastrointestinal endoscopy correlates the visual observation with clinical assumption very well to make a presumptive diagnosis. The added advantage of taking biopsy under direct visualization has further increased its importance, as final diagnosis is always through histology. Histopathological examination of stomach biopsy helps identify various lesions including malignancy and allows for early therapeutic decisions without delay. [6]

It has been confirmed that the development of gastric cancer spans several decades sequentially starting from the H. pylori infection, development of chronic active gastritis to development of glandular atrophy and intestinal metaplasia. [7]

The Sydney system for the classification of gastritis emphasizes the importance of topographical, morphological and etiological information.[8] This study sets out to determine the histopathological findings of gastric biopsies and to correlate histological diagnosis with clinical findings.

## AIM AND OBJECTIVES

To study the histopathology of Gastric biopsies and correlate them with clinical presentation, age, sex and to differentiate them between neoplastic and non neoplastic lesions.

## MATERIALS AND METHODS

The study was done in the Department of Pathology, Geetanjali Medical College & Hospital, Rajasthan from 1st January 2019 to 30th June 2020. A total of 83 gastric biopsies were included in the study period. Patient brief clinical data including age, sex, clinical details, Radiological details, gross and microscopic findings were obtained from case records and noted. The gastric biopsies were processed according to standard operating protocols. Sections were cut at 3-4 microns and stained with routine Hematoxylin and Eosin stains.

## INCLUSION CRITERIA:

Well preserved specimen of gastric biopsies.

## EXCLUSION CRITERIA:

Autolysed specimen.
Unfit for evaluation due to any technical reason.

## OBSERVATIONS AND RESULTS

The study was conducted from 1st January 2019 to 30th June 2020 comprised of 83 Gastric biopsies, of which 26 (31.33%) cases were non neoplastic & 57 (68.67%) cases were neoplastic. Out of 83 cases 58 (69.88%) were males & 25 (30.12%) were females. The mean age of all 83 cases was 55.80 years. The maximum number of cases was observed in 50-59 years of age group having 21(25.30%) cases. The gastric lesions were more common in males with 58 (69.88%) cases as compared to females 25 (30.12%) cases with Male: Female ratio of 2.32:1.

Both Benign lesions and malignant lesions were common in males as compared to females with Male: Female ratio of 3.3: 1 and 2: 1 respectively. The foremost clinical feature observed in the order of frequency was Nausea & vomiting in 79 (95.18%) cases. Pain in abdomen alone or associated with Dyspepsia was observed in 77 (92.77%) cases, weight loss & reduced appetite in 56 (67.47%), Dyspepsia in 43 (51.81%), breathlessness in 30 (36.14%) cases. Smoking is the common risk factor recognized among all the gastric lesions. It was observed that spicy food in 45 (54.22%), Non vegetarian diet in 42 (50.60%), smoking in 35 (42.17%) to show association with malignant lesions.

Most gastric carcinomas presented with Ulcerative growth 20 (35.08%) cases followed by growth & malignant gastric ulcer 13(22.81%) cases each. Other endoscopic findings were Stricture 4(7.02%), polyp 2(3.51%), Benign gastric ulcer stricture in 1(1.75%) cases.

In the present study commonest site of presentation of gastric malignancy was Pylorus in 30 (52.63%) followed by Antrum 11 (19.3%), Cardia 7 (12.28%), Fundus & body in 5 (8.77%) and 4 (7.02%) cases respectively. In the conducted study Gastritis 11 (13.25%) was most common among benign lesions whereas Adenocarcinoma 38 (45.78%) was most common among gastric

malignancies. Out of 38 Adenocarcinoma cases, Intestinal types were 27 (71.05%) and diffuse types were 11 (28.95%). Most Adenocarcinoma show poor differentiation 22 (57.89%), followed by 11 (28.95%) cases moderately differentiated & 5 (13.16%) well differentiated.

Out of total 83 stomach biopsies, the endoscopic correlation was made in 63 cases including neoplastic & non neoplastic lesions. In Carcinoma stomach endoscopic correlation with histopathology was in 47 cases out of 57 cases (82.4%).

Out of total 83 biopsies, the clinical correlation was made in 66 cases including neoplastic & non neoplastic lesions. In Carcinoma stomach clinical correlation with histopathology was made in 48 cases out of 57 cases (84.21%).

## DISCUSSION

In our study out of total 83 patients, 26 were benign and 57 were malignant lesions. Out of 26 benign lesions, 20 patients were male (76.92%) and 6 patients were female (23.07 %). There was male preponderance of gastric lesions throughout the world. We have found a male: female ratio of 3.3:1, which was at par with other studies done by P. Rajeshwari et al.[9] & Khan[10].

The commonest symptom was Pain in abdomen (30.12%) followed by nausea, vomiting (27.71%) & dyspepsia (12.05%) which correlated with the study done by Heading R.C. et al. [11] and Usman et al.[12] In both of these studies pain in abdomen was the commonest presentation i.e. 54% & 46% respectively.

The most common lesions in the gastric biopsies were Gastritis 11 (13.25%) among benign lesions & Adenocarcinoma 38 (45.78%) among malignant lesions.

There were 57 (68.67%) neoplastic cases, out of which 38 (66.66%) cases were Adenocarcinoma, 2 (3.5%) were squamous cell carcinoma, 7 (12.28%)cases of Gastrointestinal stromal tumour, 5 (8.77%) cases of Non Hodgkin Lymphoma, one (1.75%) case of Neuroendocrine tumour and four (7.01%) cases of dysplasia.

Gastric carcinoma was more common in males than females (2:1), this correlated with studies done by Sumathi B et al. [13]and Deepika et al.[14]. The males are exposed to more risk factors than females and also the gastrointestinal malignancies were more common in males as studied by JC Paymaster et al. [15]

The most common age group involved by Gastric malignancies s (40-69) years accounting for 45.78% of all gastric malignancies which is similar to study conducted by Sagarika et al. [16], Santosh[17], J. Sushma [18] where predominant age group involved in gastric carcinoma was (40-69) years. Similar trend was also observed by studies conducted by Roder DM [19] & Sambasivaiah K et al. [20] where gastric carcinoma peaks at 5th to 6th decade of life.

Studies by J Sushma et al. [18], Dicken et al.[21]. and Kelly et al. [22]showed that Adenocarcinoma accounts for 90-95% of all the gastric malignancies. This correlated with the present study where Adenocarcinoma accounts for 38 cases (66.6%) of all gastric malignancies.

On clinical evaluation most common presenting complaints in gastric cancer were nausea, vomiting in 56 cases (67.47%) and pain in abdomen in 52 cases (62.65%) followed by weight loss and reduced appetite with 50 cases (60.24%), dyspepsia in 33 cases (39.76%), Breathlessness in 22 cases (26.51%), swelling abdomen in 19 cases (22.89) and malena in 10 cases (12.05%).

Pain in abdomen was the most common presenting complaint among studies conducted by Sagarika et al. [16] and Ashis kumar[23] followed by weight loss, reduced appetite and dyspepsia. This is similar to study done by Kenneth Adashek et al.[24]

In our study, Adenocarcinoma of stomach endoscopically presented as Ulceroproliferative growth in 17 (29.8%), malignant gastric ulcer & growth 13 (22.8%) each, GEJ stricture 4 (7%), ulceroinfiltrative growth 3 (5.26%), polyp 2 (3.5%) and 1 (1.75%) of benign gastric ulcer which was similar to studies conducted by Sagarika, Ashis and Krishnappa et al. [16, 23, 25] where ulcer & ulcerative growth constituted majority of carcinoma. This was also similar to study done by Qizilbash and Stevenson where ulcerative lesions constituted majority (70%) of the cases. [26]

In our study out of total 57 gastric carcinoma cases, 35 (42.17%) were smokers, 25 (30.12%) were alcohol addict, 35 (42.17%) were both smokers and alcohol addict. Similar association between smoking and gastric malignancy was seen in studies by Debashis, Sagarika, Santosh and Deepika et al. [27, 16 and 17]. The association between smoking, alcohol and gastric malignancy was also seen by Lourdes Flores- Luna et al. [28]

Non vegetarian diet also shows significant association with gastric malignancy in comparison to pure vegetarian diet in our study with 42 (50.60%) patients being nonvegetarians as compared with pure vegetarians having only 15 (18.07%) patients. Similar finding was obtained on studies conducted by J. Sushma et al.[18] and Deepika et al. [14]

In our study a total of 37 (64.9%) gastric carcinoma patients were of lower socioeconomic status, rest 15 (26.3%) to middle socioeconomic status and rest 5 (8.77%) patients of Upper socioeconomic status and was similar to studies conducted by Debashis et al. [27]and Sumathi B. et al. [13] where majority of gastric malignancies were associated with Lower socioeconomic status and to rural region.

In our study Pylorus and Antrum were biopsied in 30 and 11 patients with a percentage of 52.63% and 19.30% respectively followed by Cardia in 7 (12.28%) cases, Fundus and Body in 5 (8.77%) and 4 (7.02%) cases respectively. These findings were similar to studies conducted by Debashis et al. [27], Sagarika et al. [16], J. Sushma et al. [18] and Ashis kumar[23] where most common site involved was pylorus and Antrum. Also studies conducted by Suvarna and Shashidharan revealed that incidence of gastric cancer was highest in the pylorus. [29] Our study revealed that Adenocarcinoma was the most common among gastric malignancy with 38 (66.6%) which was similar to study done by J. Sushma et al. [18]and Debashis et al. [27]

Intestinal type Adenocarcinoma was most common type with 27 (71.05%) cases and rest 11 (28.95%) were of diffuse type Adenocarcinoma. This was similar to studies done by J. Sushma et al. [18] and Ka Shing cheung[30]

Most Adenocarcinomas were poorly differentiated with 22 (57.89%) cases, similar to studies done by Sagarika[16] and Ka Shing Cheung [30] where poorly differentiated Adenocarcinoma constituted 76% and 41.6% respectively.

## CONCLUSION

Our study suggests that carcinoma stomach mostly peaks around 5th to 6th decade. The mean age of all gastric biopsies was 55.80 years. Also malignant lesions found to be more common in males as compared to females with male: female ratio of 2:1. The most common clinical presentation was Nausea, vomiting and pain in abdomen which was vague and therefore ignored. If patients with gastric cancer are thoroughly evaluated with good clinical history and careful examination of the patients, many important symptoms and signs could be picked up which will help to subject the patients for further invasive evaluation and also helps in better prognosis of the disease. Most gastric carcinoma on endoscopy presented as ulcerative lesions. The most common site for gastric carcinoma was pylorus and Antrum region. Out of 83 cases, there is a consensus between endoscopic and histopathological diagnosis in 75.9% of the cases. We therefore conclude that endoscopy is incomplete without biopsy and so the combination of methods provides a powerful diagnostic tool for better patient management. Study of gastric mucosal biopsies is useful in distinguishing non neoplastic, benign and malignant lesions and thereby aid in further treatment protocol. Increased awareness among the public can help us to detect the disease in an early stage and achieve higher cure rates.

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