

## Histopathological Study of Gastric Cancer At Tertiary Care Hospital

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**Abstract :** Carcinoma of the stomach is a second leading cause of cancer death worldwide. The incidence of gastric cancer varies in different parts of the world and among various ethnic groups. This study was a retrospective study of gastric cancers at Kakatiya Medical College, Rangampet, Warangal from 2012 to 2015 were selected. A 81 cases of gastric cancers were selected which accounted for 18% of gastrointestinal cancers. Pylorus was the commonest site involved, followed by the body and then cardia-fundus. Grossly the commonest type was an infiltrative lesion. Microscopically according to Lauren's classification, intestinal type was the commonest (23%), followed by diffuse (22%) and mixed (7%). Chronic follicular gastritis, intestinal metaplasia and lymphoid hyperplasia were common findings in the intestinal type of adenocarcinoma.

**Keywords:** Adenocarcinoma, Gastrointestinal cancers, Histopathology.

### I. Introduction

Gastric cancer is still one of the major causes of cancer deaths<sup>1</sup>, although mortality has been consistently decreasing<sup>2</sup>. At present it is the second most cancer after lung malignancy<sup>2</sup>. Among the malignant tumours of the stomach, carcinoma is the commonest accounting for about 90-95% cases<sup>3</sup>. Next in order of frequency being lymphomas (4%), carcinoids (3%) and malignant spindle cell tumors (2%)<sup>4</sup>. The incidence is particularly high in Japan in comparison with Western countries<sup>5</sup>. However, the decrease in incidence has not altered five year survival rates over the past 30 years speaking of poor prognosis of advanced gastric cancer. The incidence and mortality is double for males in both high and low risk countries<sup>6</sup>. Environment plays an important role and common characteristics of high risk areas being high intake of starchy foods smoked and salted meat with low intake of fresh fruits and vegetables<sup>7-10</sup>. Risk factors include atrophic gastritis with intestinal metaplasia<sup>8-9</sup> pernicious anaemia, adenomatous polyps<sup>3</sup> and previous partial gastrectomy. A four years retrospective analysis of gastric cancers were analysed.

### II. Methods

The data for the study was collected from the records of Department of Pathology, Kakatiya Medical College, Rangampet, Warangal during the period of 2012-2015. Ethical clearance from the institute was obtained before the start of study. The relevant clinical data was recorded from the case sheets of the patients. The total number of endoscopic biopsies and gastrectomy specimens were recorded. However, only gastrectomy specimens were analyzed in the study.

The gross detail included topography and gross details of the tumour. Gross morphology was based on Borrmann (1926) classification as; polypoid, fungating, infiltrating and ulcerative types. Microscopic data was recorded from the available sections and recent blocks, using haematoxylin and eosin, routinely. Special stains like PAS and Alcian blue and reticulin were used wherever indicated. The histological classification was based on Lauren's (1965) classification as follows: (1) Intestinal type, (2) Diffuse type and (3) Mixed type. Descriptive statistics were used for analysing the data using SPSS version 20 and results were presented in percentage and simple frequency.

### III. Results

In the study of gastric cancer, eighty one histologically confirmed specimens resected surgically were analyzed. Analysis of 5 years data showed an overview of the high percentage of gastric cancers which comprise of 18%. Males outnumbered females in the ratio 3:1. The males were mostly affected in the 5th decade and females in the 4<sup>th</sup> decade of their life. It was observed that pyloric antrum was the commonest site involved followed by body and then cardia-fundus in both the sexes (Table 1). Pyloric antrum was also the commonest site for all 4 gross morphological types of tumours. Out of these, 70 cases were adenocarcinomas and their variants (2 adenocarcinoma – carcinoid, 1 adenocarcinoma with squamous cell carcinoma) (figure 1). There were 2 cases of Non-Hodgkin's lymphoma also. Histologically intestinal type of carcinoma was seen in

24%, diffuse in 23% and mixed in 7% cases (Table 2). One case of adenosquamous (0.6%) and two cases of adenocarcinoma-carcinoid (1.3%) were located at the pyloric antrum. The diffuse type occurred mostly at the body of the stomach (table 3).

Males were predominantly affected by intestinal type (33.1%) of gastric carcinoma, followed by diffuse type (30.4%) whereas the reverse was seen in females. The mixed type affected mostly the males in our observation. Early gastric cancer was seen in 2 cases in the 4th and 5th decade of their life in both male patients.

The lesion was an ulcerative type at the pyloric antrum. In one of the patients, intestinal metaplasia and in the other chronic gastritis were additional findings. Other characteristics noted in our study included an associated factor analysis i.e. intestinal metaplasia, chronic follicular gastritis and lymphoid hyperplasia. Intestinal metaplasia, chronic follicular gastritis and lymphoid hyperplasia were more common in intestinal type of gastric carcinoma.

**Table 1: Relation Of Gastric Site With To Gender**

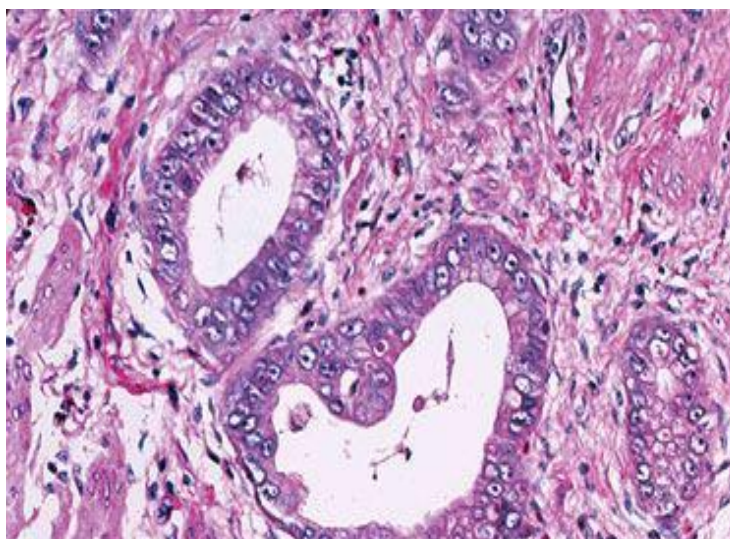
Pyloric antrum	Male	78
	Female	21
Body	Male	25
	Female	16
Cardiac fundus	Male	9
	Female	6

**Table 2: Showing Histological Types Of Gastric Carcinoma**

Histological type	Intestinal Metaplasia	Chronic follicular gastritis	Lymphoid hyperplasia
Intestinal	14	9	9
Diffuse	7	5	6
Mixed	1	1	2

**Table 3: Showing Gastric Carcinoma Histology According To Lauren’s Classification**

	Type	Pyloric antrum	Body	Cardia and fundus
1.	Intestinal	25	12	6
2.	Diffuse	14	7	5
3.	Mixed	6	3	-
4.	Adenosquamous carcinoma	1	-	-
5.	Adenocarcinoma with carcinoid	2	-	-
Total	81	48	22	11



**Figure 1: Well Differentiated Adenocarcinoma H&E X 400**

#### **IV. Discussion**

In this study 85 cases of gastrectomy specimens were included. The incidence was 19.2% which is higher as compared to other parts of India. In Kerala it is 15.9%<sup>11</sup>. The majority of our patients were males in the 5<sup>th</sup> decade of their life and the youngest was 20 year old. Male:female ratio was 3:1 which was in accordance with other studies<sup>12</sup>. The pyloric antrum was the commonest site (64.3%) for gastric carcinomas, followed by body (23.3%) and cardia-fundus (8.3%). Our findings were in conformity with those of Ming<sup>13</sup>, Gangadharana Reddy<sup>14</sup>. Commonest site was pyloric antrum in 50.6% males and in 14.6% females. This differed from Donald and Goldman<sup>15</sup> who found that cardia was mainly affected in both sexes.

In advanced gastric carcinomas, infiltrative type of tumour was the commonest (68.9%), out of which 65.5% were localized type and 3.3% were diffuse (Linitis plastica) type. The other types in decreasing order were ulcerative (18.9%), fungating (6.7%) and polypoid (5.4%).

Our findings did not match with those of Cassell and Robinson<sup>16</sup>, who found that ulcerative type occurred in 51% and infiltrative in 32% and polypoid in 17% of cases. However, the findings matched with those of Schindler et al<sup>17</sup> who also found infiltrative lesion to be commonest (63.2%), followed by ulcerative (17.6%), fungating (16.3%) and polypoid (2.9%). In our study using Lauren's<sup>18</sup> classification, intestinal type of carcinoma predominated at the pyloric antrum (22%) followed by body (8%) and cardia-fundus (6%).

Diffuse type was involving the pyloric antrum (27.3%), body (15.3%) and cardia-fundus (2%). The mixed type was also seen mostly at the pyloric antrum (8%) and body (4%). Our findings correspond with those of Ming<sup>13</sup> who also found that intestinal type of lesion was commonest in the pyloric region (59%), fundus (28%), both regions (12%) and whole body (1%).

We had one case of adenosquamous carcinoma with a fungating growth at the pyloric antrum with microscopic infiltration limited to serosa and no lymph node metastasis. This was in accordance with Cruze et al<sup>18</sup>. Two cases of adenocarcinoma with carcinoid at the pyloric antrum along the lesser curve were seen by us. The lesion was ulcerative type with diffuse (signet ring morphology) adenocarcinoma and carcinoid in first part of duodenum. Both patients had lymph node metastasis of adenocarcinoma. Yamashina and Flinner<sup>19</sup> found a polypoid tumour in the mid greater curvature of the stomach with same microscopic findings as ours. Well differentiated tubulo papillary adenocarcinoma and a carcinoid at the pyloric antrum with lymph node metastasis of adenocarcinoma was reported by Jayaraman et al<sup>6</sup>.

Early gastric carcinoma was seen in two cases (1.3%). Both were males in the age group of 40-50 years. Both were intramucosal (intestinal type). One case had associated chronic gastritis and the other had intestinal metaplasia. Our findings correlated with Ivans et al<sup>20</sup>, who had 1.9% cases with same associated findings.

Two cases of Non-Hodgkin's lymphoma were also seen in our study. Both were females in the age group of 35-45 years. Macroscopically pyloric antrum was involved by an infiltrative type of lesion in one case with microscopic picture of follicular mixed cell. The other case had an ulcerative lesion which was microscopically large cell (follicular cell) type. Our findings were similar to those of Dragosics et al<sup>21</sup>. Stomach is a frequent site for GIT lymphomas comprising about 67% of total lymphomas with a male preponderance and median age of 54 years.

#### **V. Conclusion**

Our study of analysis of gastric cancers throws a light on the pattern of gastric cancer seen in Telangana. Although it is a retrospective analysis yet several features like sub-site, histological type and presence of various associated factors like chronic follicular gastritis and intestinal metaplasia were seen in a sizeable percentage of our patients. They are pointers towards an etiological factor which needs to be worked out in order to find a relationship. Due to lack of clinical output the other risk factors like food etc. could not be evaluated to study a cause effect relationship.

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