



A pathological study of gastric carcinoma in a tertiary care hospital

M.Phani Kumar¹, M.Janaki², M.Hemalatha³

- 1- Associate Professor of Pathology, Department of Pathology, Fathima Institute Of Medical Science, Kadapa., AP.
- 2- Prof&HOD, Department Of Pathology, Santhiram Medical College, Nandyal, AP.
- 3- Assistant Professor, Department of Pathology, Kurnool Medical College, Kurnool

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Corresponding Author:

Dr. M.Phani Kumar, Associate Professor of Pathology, Department of Pathology, Fathima Institute Of Medical Science, Kadapa., AP.
Email: phanimeruva@gmail.com

Abstract:

Gastric cancer is one of the leading causes of mortality in the world. It is the second most common carcinoma in the world and around 10 percent of all cancers. **Objective:** To study the gross and histologic type of the various gastric lesions. **Method:** The present study for a period of 7 years from June 1999 to June 2006 was done in the Department of Pathology, Kurnool Medical College, Kurnool. During the above period resected gastric specimen were analyzed. **Results & Conclusion:** In the present study, malignant tumors were more common. The incidence of malignant tumors were more common in males than in females. The peak incidence is observed during fifty to sixty years. The youngest age incidence was observed in 25 years male. The oldest age incidence observed in 80 years male. The common blood group observed in male was A-Group. The most common site involved was pyloric end.

Key words: gastric carcinoma; pyloric end; fungating; well differentiated; peptic ulcer; carcinoid

Introduction

Gastrointestinal tract is a common site for non-neoplastic and neoplastic lesions. The gastric muscular is the common site for (excavated defects) peptic ulceration, gastric reflux diseases and for malignancies. In the early part of the 20th century stress and diet were the important pathogenic factors for the peptic ulceration. Later by the investigations it was noticed that the acid is the causative agent of peptic ulceration. Further more the gastric infection

by H.Pylori & drugs are the main agents in the recurrence of disease.

Highest rates are seen in the far East and Japan ranks first in the world. In 1997, gastric cancer was the leading cause of cancer mortality in the United States for men and the third leading cause in women. The gastric malignances are more common in South India [1].

It is twice common in men [2]. The predisposing factors like recurrent H. Pylori infection, socio-economic condition, diet, alcohol

abuse, smoking and genetic factors are playing main role. The factors are variable within different parts of same country [3].

In the diagnosis of gastric lesions the gastroscopy is playing main role. Histopathology play an important role in the diagnosis and treatment . Hence it is useful to study these tumors in order to have an idea of local behavior of the tumor. The gastric carcinoma have a marked tendency towards the lymphatic and trans-coelomic metastasis, relative rapid progression and poor five years survival rates [4].

80 percent of patients with early gastric cancer are asymptomatic. When symptoms do occur, they tend to mimic peptic ulcer disease. Advanced cancer always presents with symptomatology like weight loss, pain, anorexia, melena and ulcer like symptoms.

Laboratory studies are unrevealing till the cancer reaches the advanced states. Anaemia, hypoproteinemia, positive test for fecal occult blood and elevated liver enzymes noted.

Barium studies, CT and MRI are useful diagnostic list.

Recently TNM classification and histological type are more important factor to assess the prognosis of the patient.

Aim:

1. To study the gross and histologic type of the various gastric lesions.
2. To study the age and sex wise incidence of gastric carcinoma.
3. To evaluate the clinical staging and prognosis of gastric cancer

Materials and Methods

The present study for a period of 7 years from June 1999 to June 2006 was done in the Department of Pathology, Kurnool Medical College, Kurnool. During the above period resected gastric specimen were analysed. An analysis of 161 cases of various lesions of stomach during the above period was done. H&E stained sections of these 161 cases were reviewed and the lesions were tabulated (Table:1) . Histochemical study could be undertaken only in a few cases. The study is made into two parts.

- 1) Prospective study.
- 2) Retrospective study.

Prospective study: The prospective study was done from June 2004 to June 2006. A total number of 56 cases were analysed. The resected specimen studied

by H&E and histochemical stains. The special stains like PAS, AB, Retic were also taken.

Retrospective Study: Was done from June 1999 to May 2004. In this study 105 cases were analysed both histopathologically and histochemically.

Period of study	Total No. of Surgical specimens	Total gastric resected specimens	Total percentage
June 1999 to May,04	11991	105	1.14
June 2004, to June06	4881	56	0.87
Total	16872	161	2.01

Table no 1: showing number of biopsy specimens received.

The following are noted

1. Clinical details including age, sex, etc.
2. Gastroscopic biopsies.
3. Gross appearance the site, size and nature of the lesion in resected specimen.
4. Histological features and depth of invasion including nodal metastasis.
5. Histochemistry wherever necessary.

Results and Discussion:

The commonest histological lesions were tubular adenocarcinoma in 150 cases.

2. The second common lesion was peptic ulcer in 4 cases.
3. The third common lesion noted was carcinoid tumor in 2 cases.

Gastric carcinoma may arise any where from cardia to pylorus. Brookes et al 1965[6] in his study of 5441 cases found that 50 percent of tumors in the pyloric antrum. In the present study 66.45 percent of cases noted in the pyloric end followed by antrum (16.77 percent), body and cardia (0.62percent).

All the 161 resected specimen were analysed on gross appearance into ulcerating 66 cases (40.99 percent), diffuse (linitis plastica) 57 cases (35.40 percent) and polypoid and fungating 38 cases (23.6percent). In the ulcerative type, the tumor was slightly elevated, with round edges and the diameter of 0.5-3 cm in size. The cut section showed marked thickening of the wall with necrosis, in some with nodular on serous surface. In the polypoid and

fungating form, the tumor of size 1 to 6 cm, cut section was gray-white. In diffuse type, entire thickening of the stomach about 1 thick, stomach was very small shift and rigid, very thick walled and the mucosa was adherent to the muscle coat, this thickness was abruptly stopped at the pyloric ring, cut section was gelatinous.

The present study correlated with study of Borrmann (Table 2) [7] (ulcerative 41 percent, well differentiated and moderately differentiated in fifty to sixty years).

In the present study the patient with blood group-A (64.23 percent), B-group (23.27 percent), O-group (12.5percent) and AB Group (0 percent), correlated with the Aird et al (1954) study. [5]

All the 161 cases were analysed histopathologically by following WHO histological classification 2000 by Stanley R Hamilton et al. The lesions showed the following distribution. Tubular adenocarcinomas 150 cases (93.1 percent), peptic ulcers 4 cases (2.4 percent), Carcinoid tumor 2 cases (1.2 percent), Mucinous carcinoma 1 case (0.62

percent), Signet ring Carcinoma 1 case (0.62 percent), Anaplastic Carcinoma 1 case (0.62 percent), Adeno squamous carcinoma 1 case (0.62 percent), Lymphoma 1 case (0.62 percent).

Histological grading of carcinoma is of great interest because of conflicting view regarding its reliability in assessing biological behavior and prognosis. Borrmann et al 1926 documented that exophytic and expanding growths are well to moderate differentiation associated with intestinal metaplasia and tend to occur in elderly, where as poorly differentiated are of diffuse growth are prominent in young patients. Hoerr et al 1966[8], pointed out that the clinico-pathological classification based on the presence or absence of metastasis is a better grade in assessing the histopathological grading. Welch and Wilkins (1958) [9] pointed out the microscopic differentiation remains the most accurate prognostic method and the prognosis survival rate decreases if the differentiation decreases. Present study correlated with the above statement.

The prevalence of degree of differentiation according to Borrmann's macroscopic types (P<0.0005):

Type of Borrmann	Degree of Differentiation						No. of Tumors	
	Well		Moderately		Poor		Total	
	Borrmann study	Present study	Borrmann study	Present study	Borrmann study	Present study	Borrmann study	Present study
I	12	33	1	3	0	1	13	37
II	92	49	57	5	17	4	166	58
III	7	40	14	9	18	6	39	55
IV	3	-	5	-	44	-	52	-
Total:	114	122	77	17	79	11	270	150

Table 2: showing the incidence of microscopic variants in differentiation

Tubular adenocarcinoma is the main histological type observed in the present study. In this well and moderate differentiated adenocarcinoma and mucinous adenocarcinoma were noticed (140 cases, 86.95 percent). The different type of histological pattern also noticed in the same lesion.

Poorly differentiated tumor had early invasion to venous and lymphatics than well to moderate differentiated carcinoma. In the present study among the nine inoperable cases, 5 cases were with lymphnodal metastasis, three cases with liver

metastasis and one case with umbilical metastasis (Sister Joseph nodule).

The special stains Periodic Acid Schiff with diastase and mucicarmine are most useful stains. In the present study the special stains done to demonstrate mucin and correlated with the above study.

Adenosquamous carcinoma:

Mori et al 1986 [10] documented that the adenosquamous carcinoma are of less favourable prognosis than adenocarcinoma. In the present study one case of adenosquamous carcinoma reported in

forty to fifty years male patient as an ulcerative growth at pyloric end.

Undifferentiated carcinoma:

Wantanabe et al 1990 [11] documented increased male ratio in undifferentiated carcinoma with dense lymphocytic infiltration. The present study correlated with Wantanabe et al.

Carcinoid tumor:

The incidence of carcinoid varies. Gowri Bazaz and Malik et al [12] reported only one case (324) in stomach. In the present study two cases were reported in stomach.

Lymphoma:

Stomach is the commonest site of primary gastric intestinal lymphoma (Issacson P.G. et al 1994) [13] documented that gastrointestinal lymphoma in adult arise predominantly in stomach. Gowri Bazaz and Malik et al reported 1.85percent, Leena Devi et al [14] 2.3 percent in stomach. Our study correlated with Lenin et al. 0.3 percent of cases is noted in the present study.

Summary and Conclusion

1. The present study was undertaken for a period of 7 years, from June 1999 to June 2006.
2. The period of study from June 1999 to May 2004 is taken as retrospective study and from June 2004 to June 2006 as prospective study.
3. The total number of gastric lesions noticed in the present study were 161.
4. In the retrospective study 105 cases of resected specimens were analysed
5. In the prospective study 56 cases were analyzed and 9 cases were inoperable.
6. In the present study, malignant tumors were more common.
7. The incidence of malignant tumors were more common in males than in females.
8. The peak incidence is observed during fifty to sixty years. The youngest age incidence was observed in 25 years male. The oldest age incidence observed in 80 years male.
9. The common blood group observed in male was A-Group.
10. The most common site involved was pyloric end.
11. The common clinical presentation was epigastric pain followed by anaemia. For most of the cases the duration was less than 6 months.
12. The common gross appearance of the lesion was an ulcerative type of growth, followed by diffuse and fungating type.

13. The commonest size of the growth was 3 – 6 cms in size.

14. The common histological type observed was tubular adenocarcinoma.

15. The other lesions observed were carcinoid, polyp, mucoid carcinoma, signet ring carcinoma, Adeno squamous carcinoma, anaplastic, carcinoma and lymphoma.

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Figure 1: Fungating or polypoid growth



Figure 2: Ulcerative growth



Figure 3: Diffuse infiltrative type

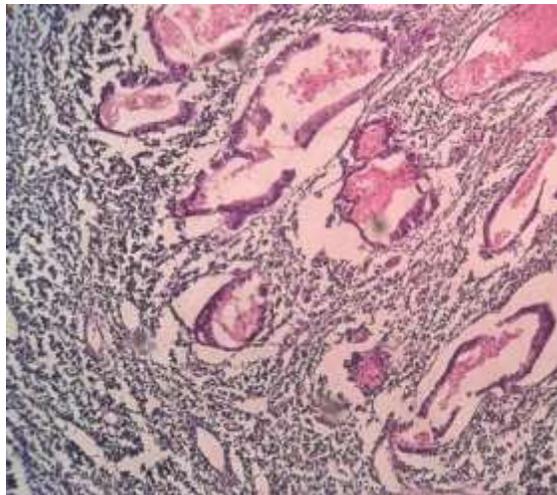


Figure 4: Well differentiated adenocarcinoma

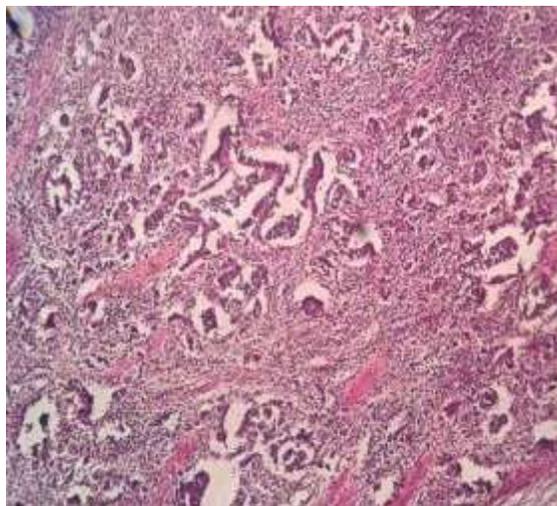


Figure 5: Moderately differentiated adenocarcinoma

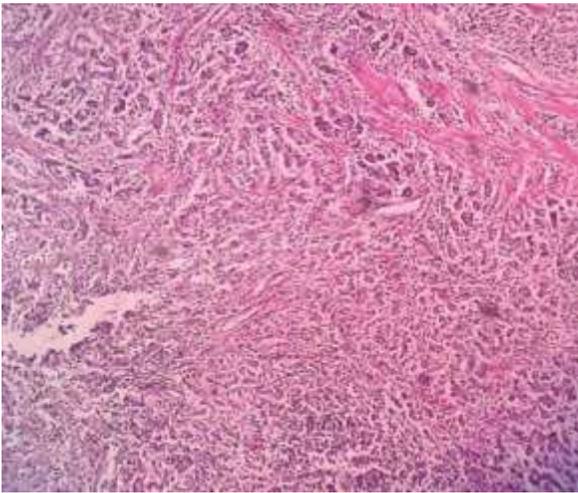


Figure 6: Poorly differentiated adenocarcinoma

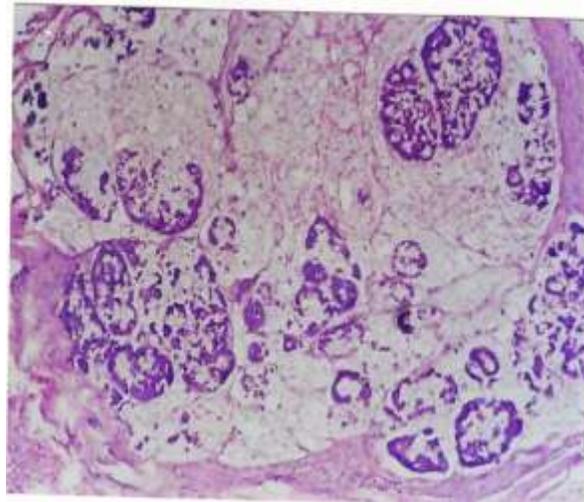


Figure 9: Mucinous carcinoma

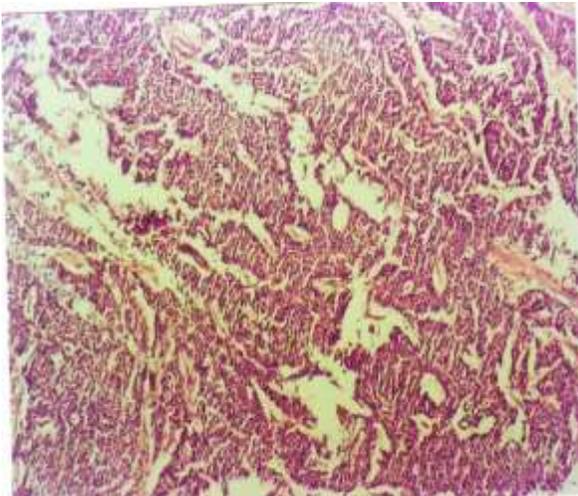


Figure 7: Carcinoid tumor

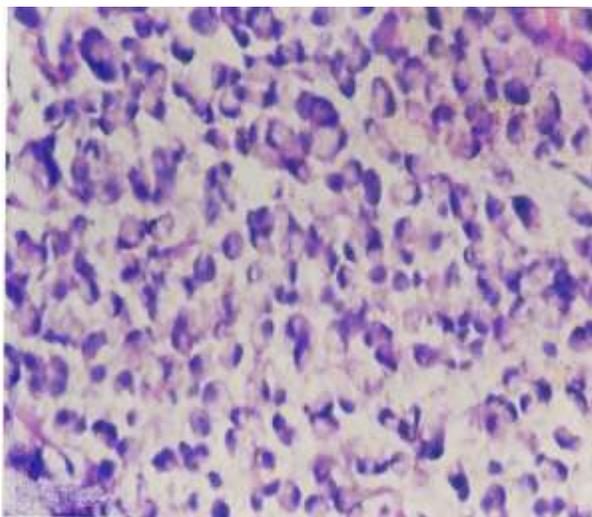


Figure 8: Signet ring carcinoma