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**Original Research Article**

# A clinicopathological study of stomach carcinoma in a tertiary care hospital of central India

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## ABSTRACT

**Background:** The incidence of gastric cancer varies in different part of world. It is a series problem as it involves development of malignancy in stomach and affected by with daily life style of the habituates.
**Methods:** The present study was carried out at tertiary care center of districts of Vidarbha region of Maharashtra and neighborhood districts of Andhra Pradesh and Madhya Pradesh for the tenure of six years. Study and collection of data were assessed by examination of one hundred and seven patients suffering with the gastric carcinoma.
**Results:** Males were found to be more susceptible in a ratio of 1.22/1. Mean age of incidence was assessed as nearly 55 years. Smoking, alcohol, mixed diet, weight gain, positive family history and history acid peptic disease were reported in 23.4%, 24.3%, 63.8%, 2.8% 36.4% and 36.4% cases. Mild to severe anemia was also reported. Most accountable symptom was abdominal pain, followed by vomiting. Lump in abdomen and nausea were some other symptoms. Jaundice in little percentage was also observed. Antrum was most common site of malignancy observed in more than 50% cases. Cardia, pylorus and fundus were involved in 17, 14 and 03 patients. Thickening of stomach wall were observed. Adrenocarcinoma was in 100 patient's symptoms.
**Conclusions:** Incidence of cases in these areas refers to poor dietary habits. Increasing the literacy and awareness regarding the causative factors in the respective areas contributes to decrease the incidence and risk too.

**Keywords:** Abdominal pain, Gastric carcinoma, Life style

## INTRODUCTION

Cancer is the chief liability of the medical scientist as it is a second to CVS disorder for higher mortality rate. Among various site of cancer, stomach is very leading site, and achieved second leading cause of cancer death.[1,2] Ratio of prevalence varies in different parts of world. It has achieved fifth most common cancer among males and seventh most common cancer among females in India.[3] Prevalence is high in Japan, Korea, and China, as well as Central and South America.[4] Rate of incidence for gastric cancer are lesser in India than rest of countries. Even rate of incidence, varies in India due to diverse culture and related life style and food habits.[5] The National Cancer Registry Programme among urban registries was conducted in India in the year 2010. Mean age adjusted rate (AAR) of gastric cancer were calculated to be varied from 3.0 to 13.2. Chennai registry was at the peak high. Population based cancer registries in India in the year 2006-2008 reveals that gastric cancer is one of the five leading cancer in male in most of major cities like Bangalore, Chennai, Dibrugarh, Kamrup Urban, Kollam, Dindigul, Aizawl, Mizoram, Sikkim simultaneously among females it is the third most common cancer in Barshi, Chennai, Mizoram and Sikkim. Prevalence of gastric cancer also reported in

Nagpur with the male to female ration of 1.7:1 in same period.[5] Population with blood group A is highly prone to gastric cancer.[6] Switch off from High risk to low risk region is also a one of epidemiologic factor.[7] Consumption of pickles with high salt, heavy spicy food, intake of teais identified as high-risk factor.[8,9] Tobacco smoking has been convicted as a dangerous risk factor for incidence of gastric cancer.[10] Vegetables and fruits are good to avoid risk.[11] Microorganism *H. pylori* considered being subject to invite gastric cancer. This microbe is collaborating to gastric cancer.[12] The present observations are on the study of development of gastric malignancy in the region of Vidarbha and neighbouring districts of Andhra Pradesh and Madhya Pradesh. The aim of study to analyses the contribution of etiologic factors like diet style and other regional habits in gastric carcinoma.

## METHODS

The subjected retrospective analysis was assessed in different parts of Vidarbha region including some part of Andhra Pradesh and Madhya Pradesh. Study was performed at Tertiary care Centre of eleven districts for a period of 6 years, from 1st January 2007 to 31st December 2013. During this study hundred and seven patients were recorded to be suffered with gastric carcinoma and monitored. Diagnostic protocol waspreceded through collection of information about the age and sex of patients. History of the patient including life style related activities, dietary habits, family related history, history of peptic ulcer complaints, and information regarding symptoms, hemoglobin contents, was generated and compiled. Siteof stomach involved were also expressed. Pathological and histological examinations were examined. Site of location of tumor, signs and symptoms and stage of reporting to the hospitals have been recorded. Diagnostic tools to diagnose the tumor and surgeries were performed. All the variables from questionnaire were entered into Microsoft excel sheet and electronically transferred. Statistical data analysis was performed using SPSS software version 17.0 (SPSS, Inc, Chicago, IL). Continuous variables were summarized using mean, median, mode and standard deviation. P-values were computed for categorical variables using Chi-square (X2) test and Fisher's exact test depending on the size of the variables. Multivariate logistic regression analysis was used to determine predictor variables that are associated with outcome. A P-value of less than 0.05 was considered to constitute a statistically significant difference.

## RESULTS

Total of 107 patients were found to be suffered with gastric carcinoma out of total no. of 703 patients of different carcinomas. Male were found to be predominate over female with a ratio of 1.22:1. Collection of age related data reveals that gastric carcinoma occurs mostly in the age range of 50-59 years, followed by 40-49 years and then 60-69 years with a percentage of 31.78%, 27.10% and 20.56% respectively. In an age of 70-79 years and 20-29 years, very less number of patients was reported, while 9.35% of patients were found with an age of 30-39 years. The mean age of incidence was calculated as 54.55 years. Risk factors responsible for the occurrence of gastric carcinoma were also assessed and filed (Table 1). Consumption of smoking and alcohol contributed nearly equal burden for incidence of the disease i.e. in 23.4% and 24.3% patients. Consumption of mixed diet was found in 79.4 % of patients. Weight gain reflected by obese ill was found in 63.8 patients. A positive family history was also supported to risk in 2.8%, while history of peptic ulcer disease was in 36.4%. History of acid peptic disease was elicited from 39 patients (36.4%). Hemoglobin content was normal in 75.70% of patients. Patients with mild, moderate and severe anemia were found in percentage of 15.89, 5.61 and 2.80 respectively. Symptoms observed in patients were recorded and shown in Table 2. Abdominal pain was accounted as major symptom experienced in 102 patients, followed by vomiting in 92 patients. History of loss of weight and appetite was obtained from 79 patients (73.83%) and 83 patients (77.57%) respectively. Eighty-eight patients (82.24%) gave history of nausea while 16 patients each (14.95%) gave history of lump in the abdomen and melena. Twelve patients (11.21%) each was found to have jaundice and change in bowel habit each.

**Table 1: Study of risk factors and life style of patients suffering with gastric carcinoma.**

| High risk factors | No. of patients | % of patients |
|---|---|---|
| **Smoking** | 25 | 23.4 |
| **Alcohol** | 26 | 24.3 |
| **Vegetarian diet** | 22 | 20.6 |
| **Mixed diet** | 85 | 79.4 |
| **Obesity** | 68 | 63.8 |
| **Family history** | 3 | 2.8 |
| **History of peptic ulcer disease** | 39 | 36.4 |

**Table 2: Represents symptoms in patients of gastric carcinoma.**

| Presenting symptoms | No. of patients | % of patients |
|---|---|---|
| **Weight loss** | 79 | 73.83 |
| **Abdominal pain** | 102 | 95.2 |
| **Anorexia** | 83 | 77.57 |
| **Dysphagia** | 5 | 4.67 |
| **Nausea** | 88 | 82.24 |
| **Melena** | 16 | 14.95 |
| **Mass** | 16 | 14.95 |
| **Vomiting** | 92 | 85.98 |

Malignancy in antrum part was found in 53 (49.5%) patients whereas 20 (18.47%) patients were found to have

malignant lesion in the pylorus. Cardia was the site of malignancy in 17 patients (15.9%) and body was involved in 14 patients (13.1%). Only 3 patients (2.8%) had malignancy in the fundus region of the stomach.

Clinical examination has been performed in each patient. Pallor was present in 22 patients (20.56%) while icterus in 12 patients (11.21%). Virchows's sign detected in 5 patients (4.67%). Ascites in 8 patients (7.48%), succusion splash and visible gastric peristalsis were identified in 4 patients each (3.74%). Sister Mary Joseph's nodule was present in 2 patients (1.87%). Upper GI endoscopy showed sixty patients (56.10%) had growth in the stomach, ulceration in 26 patients (24.30%) whereas lumen narrowing in 21 patients (19.60%).

A total of 107 USG abdomen were analyzed and diagnosed that thirty four patients (31.78%) were found to have stomach wall thickening, liver secondries in16 patients (14.95%), stomach mass in 2 patient (1.87%) and ascites in 5 (4.67%) patients. Stomach wall thickening with liver secondries were marked in 5 patients (4.67%) whereas stomach mass with liver secondries were manifested in 9 patients (8.41%).

Computerized tomography (CT) of the abdomen reflected to wall thickening in 46 patients (42.99%) whereas stomach mass in 21 patients (19.63%). Stomach mass with lymphdenopathy in 3 patients (2.80%) whereas stomach mass with liver secondries 12 patients (11.21%) had been observed. Wall thickening with liver secondries were seen in 12 patients (11.21%) and stomach wall thickening with ascites was found in 4 patients (3.74%). Ascites and liver secondries were found in 5 (4.67%) and 4 (3.74%) patients respectively. Surgical operations like feeding jenunostomy, feeding gastrostomy, gastrojejunostomy, gastrectomy, and partial gastrectomy was done in 48, 14, 32, 10, and in 3 patients respectively. Majority of cases diagnosed with adenocarcinoma (100 patients). Squamous cell carcinoma and GIST was observed in 2 patients while one case among to each of heptoid and intra epithelial malignancy (Table 3). The most common stage of presentation was stage 4 with 62 patients (57.94%) followed by stage 3C with 17 patients (15.88%), while in other state it was less than 10 patients.

**Table 3: Distribution of histopathological examination (HPE) in carcinoma stomach.**

| HPE | No of patients (n) | Percentage (%) |
|---|---|---|
| **Adenocarcinoma** | 100 | 93.46 |
| **Squamous cell carcinoma** | 2 | 1.87 |
| **GIST** | 2 | 1.87 |
| **Hepatiod carcinoma** | 1 | 0.93 |
| **Intramucosal epithelial malignancy** | 1 | 0.93 |
| **Others** | 1 | 0.93 |
| **Total** | 107 | 100.00 |

## DISCUSSION

The present study was carried out in tertiary care centre of Vidarbha region and nearby places. During the specified tenure of studies, 107 patients were suspected with gastric carcinoma. Study was done at rural places so most of population belongs to Hindu community. Here the population prefers mixed diet. Being a rural areas, bidi and cigarette smoking as well as alcohol consumption is also preferable. Most important is the tobacco chewing commonly seen in peoples while working also.[13] These life style habits may be active contributors to rising of incidence ratio day by day in the particular areas. Normal peak incidence of gastric carcinoma observed was 5$^{th}$decade of life with 34 patients (31.78%) of patients followed by patients in the 4$^{th}$ decade of life with a total of 29 patients (27.10%) with the mean age range and mean age of 25-89 years and 54.66 +/- 12.32 years respectively. The mean age of diagnosis for males is 58.05 +/-11.65 years and the mean age of diagnosis for females is 50.50 +/- 11.95 years. Wanebo et al had observed the peak age incidence occurred in the 7$^{th}$ and 8$^{th}$ decade.[14] Malik et al reported a peak age incidence in 6$^{th}$ and 7$^{th}$ decade while Leena Devi KR reported 5$^{th}$ and 6$^{th}$ decade.[15,16] Mean age of gastric carcinoma were also studied and compared with some reported data. Present studies revealed the mean age of incidence to be 54.66. Meyers et al reported mean age of incidence as 60.0, whereas Liang et al and Vaughan reported 59 and 59.8 respectively.[17-19] Compilation of data shows male predilection for carcinoma of stomach, rationally because of life style habits of males like smoking and alcohol consumption as reported in most of patients. Mixed diet and high weight also contributed in positive development of malignancy as well as gastric ulcer history too. Pain in abdomen was common diagnosed symptoms, followed by vomiting. History of loss of weight and appetite, nausea and development of lump in the abdomen and malena were also reported. Jaundice was also seen in some cases. Some other studies done by Wanebo et al, Diehl et al, and Barad et al, had also reported abdominal pain as most common symptoms.2,14,20 Lump in abdomen as a common clinical finding in present study and studies done by Goldsmith et al.[21] These findings also support pallor reported in our studies. Site affected by malignancy were also assessed. Antrum part of stomach is mostly susceptible region observed in more than 50% cases, followed by pylorus and then cardia. Only few cases observed with malignancy in fundus. Development of advanced stage with liver metastatis was indicated by presence of icterus. Wall thickening of stomach were reflected by USG abdomen and CT scan. The most common site of gastric carcinoma in a study by KM Mohandas et al, Liang et al and Diehl et al was distal third of stomach, whereas, Wanebo et al found proximal third to be the most common site.[14,18,20,22] Adrenocarcinoma was seen in almost all patients. More than 50% patients reported at study center in stage 4 followed by stage 3C of gastric malignancy.

## CONCLUSION

Our studied shows that susceptibility of gastric carcinoma increases in middle age like after age of 40 years. Inhibition of intake of meat, and gastric elevators like alcohol, bidi, cigarette, tobacco also decrease the incidence of gastric problems and occurrence of malignancy too. Special precautions should be taken to control weight gain and abdominal pain may be the primary diagnostic symptom to be considered for next examination. Approaches to increase the literacy of common public regarding the etiology and awareness help to health care center to control the incidence cases and susceptibility as well as early report to the hospitals.

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