

Research Article

An epidemiological study of 50 consecutive cases of gastric cancer from a tertiary care hospital in West Bengal

Suvendu Maji*, Makhan Lal Saha, Kamal Singh Kanwar, Soumen Das

Department of General Surgery, Institute of Postgraduate Medical Education & Research (I.P.G.M.E&R), Kolkata-700020, West Bengal, India

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*Correspondence:

Dr. Suvendu Maji,

E-mail: drsuvendumaji@rediffmail.com

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ABSTRACT

Background: Gastric cancer in India shows marked regional variation both in incidence and presentation. Highest incidence is seen in the north eastern states of India. Its also common in West Bengal. However data on various clinicopathological characteristics of our gastric cancer patients is limited. The aim of this study was to find out the epidemiological profile of gastric cancer patients attending a tertiary care government hospital in West Bengal.

Methods: 50 cases of gastric cancer patients were included in the study. They were admitted from surgical OPD. Patient characteristics were obtained using pretested questionnaire. All relevant investigations like endoscopy, biopsy reports, HPE and operative notes were recorded.

Results: Average age of the patients was 51.76 years. There were 41 males and 9 females (4.56:1). There were 35 Hindus and 15 Muslims (2.33:1). 56% of the patients came from rural areas while the rest (44%) resided in urban areas. Weight loss was the commonest symptom followed by dyspepsia and abdominal pain. Majority of them were smokers (76%). Antrum was the commonest site of involvement and most common type of lesion was ulceroproliferative type (50%). Most of the gastric cancers were poorly differentiated adenocarcinomas. Indeterminate type was the commonest histological subtype. 16% of patients deemed operable on preoperative workup had advanced unresectable cancers.

Conclusions: Majority of the gastric cancer patients appear to be male and Hindu by religion, mostly with a rural background. The average age at diagnosis was 51 years. Commonest symptoms were weight loss and dyspepsia. A high percentage of the patients were smokers with a long duration of smoking. About half of the patients had poorly differentiated cancers and indeterminate histology. A significant number of cases presented late with advanced disease. There is a need for urgent screening protocol to identify patients at earlier stages of the disease.

Keywords: Adenocarcinoma, Dyspepsia, Gastric cancer, Pyloric antrum, Smoking

INTRODUCTION

Stomach cancer is the second-most common cancer among men and third-most among females in Asia and worldwide.¹ The symptoms and sign of stomach cancer are often reported late when the disease is already in advanced stages and 5-year survival is less than 30% in developed countries and around 20% in developing countries.² Despite of large number of such patients being

treated in, there is lack of sufficient publications on the epidemiology of gastric cancer from India.³ Most of the reported studies on gastric cancer from India are case reports or case series and few are case-control studies and they often deal with few specific risk factors associated with gastric cancer without looking into the entire spectrum of the disease.⁴ Hence there is an urgent need for more research is to understand the etiology, develop suitable screening test, to demarcate high-risk population

and to develop and evaluate the effect of primary prevention programs.⁴

METHODS

A total of 50 patients were included in the study. All of them were admitted from OPD on selective basis. All of them underwent upper gastrointestinal endoscopy and biopsy. All were histologically proven cases of gastric carcinoma. Underwent preoperative work up and staging with CECT scans before admission. Detailed history was recorded using a predesigned proforma. Each patient underwent complete physical examination, the details of which were recorded. All operable cases were taken up for laparotomy. Operative note and histopathology reports were obtained. Patients were followed in follow up clinics. Medical records were then reviewed for clinicopathological information, including sex, age, religion, chief complaints, personal history of smoking and alcohol intake, TNM classification after resection, morphological type of the tumor, histological grades of differentiation and Lauren classification. The data so obtained was entered in Microsoft excel sheet and analysed and presented in form of tables and charts.

Study area: Department of general surgery, IPGME&R & SSKM hospital, Kolkata.

Study population: Patients of gastric cancer admitted in general surgery wards of IPGME&R & SSKM hospital, Kolkata.

Study period: 1.5 year starting from July 2013 to November 2014.

Sample size: 50 patients.

Study design: Prospective observational study.

RESULTS

This is a prospective observational study where 50 consecutive histologically proven cases of cancer stomach were included. Demographic data for age, sex, religion, occupation, type of residence, blood groups and smoking history are tabulated in Table 1.

The average age of the patients was 51.76 years (SD = 10.81 years) with age range being 25 to 75 years. There were 41 males and 9 were females (4.56:1). Religion distribution showed 35 Hindus and 15 Muslims (2.33:1). Clearly majority of the patients belonged to the Hindu community (70%). 56% of the study population came from rural areas while the rest (44%) resided in urban areas. Among the 28 patients whose blood group was known B blood group was most common. Majority of the study population were smokers (76%) while the rest were non-smokers and the mean duration of smoking was 21.11 (SD = 8.70) years. Distribution of the presenting symptoms and signs are shown in Table 2. Weight loss

was the most common (72%) followed by dyspepsia (70%) and abdominal pain (60%) while the least common was hematemesis (12%). About 46% of the sample had complaints of dyspepsia in between 6 to 12 months.

Table 3 shows the distribution of sample according to the pathological data of the tumors. The Table shows antrum as the commonest site of involvement (72%) followed by body (16%) and the least common being fundus (12%). The most common type of lesion was ulceroproliferative type (50%) which was closely followed by ulcerative (26%) type. Also majority of the gastric cancers were poorly differentiated adenocarcinomas (36%) followed by the NOS subtype (21%) while the least common type was well differentiated adenocarcinomas (6%). Indeterminate subtype as commonest (52%), followed by diffuse type (16%). Intestinal subtype was the least common (16%) histological findings in this study sample.

According to Table 4, a total of 32 patients had an USG report available, out of which 18 (56.25%) had reports suggestive/suspicious of gastric pathology. Also the commonest finding on CECT scan was presence of antral wall thickening (50%) while the least common finding was presence of antral mass in only 5 cases (10%).

Table 1: Showing demographic data of the study population.

Category	Percentage (%)
Age	
20-39	6 (12)
40-59	33 (66)
60-79	11 (22)
Sex	
Male	41 (82)
Female	9 (18)
Religion	
Hindu	35 (70)
Muslim	15 (30)
Occupation	
Agricultural workers	12 (24)
Daily wage earners	9 (18)
Others	29 (58)
Type of living	
Rural	28 (56)
Urban	22 (44)
Blood group	
A	7 (25)
B	10 (36.7)
AB	4 (14.28)
O	7 (25)
Unknown	22
Smoking	
Yes	36 (72)
No	14 (28)

Table 2: Showing the symptoms and signs of the study sample.

Category	Percentage (%)
Symptoms	
Weight loss	72
Dyspepsia	70
Generalized weakness/fatigue	66
Abdominal pain	60
Nausea/vomiting	56
Postprandial abdominal fullness	40
Malena	24
Hematemesis	12
Signs	
Lump abdomen	20
Epigastric Tenderness	18

Table 3: Showing the pathological parameters of the study sample.

Parameters	Percentage (%)
Location of the tumor	
Body	16
Fundus	12
Antrum	72
Morphological type of tumor	
Ulcerative	26
Ulceroproliferative	50
Others	24
Histological grade of the tumor (Adenocarcinomas)	
Well differentiated	6
Moderately differentiated	16
Poorly differentiated	36
NOS	42
Type of lesions based on Lauren's classification	
Intestinal	16
Diffuse	32
Indeterminate	52
Stage of the tumor (AJCC)	
Stage 1	40
Stage 2	24
Stage 3	26
Stage 4	10
Surgery	
Resectable	84
Unresectable	16

Table 4: Showing the radiological findings of the study sample.

Parameters	Percentage (%)
USG (Whole abdomen)	
Report available	32 (64)
Normal	14 (43.75)
Suggestive of gastric pathology	18 (56.25)
Report unknown	18 (36)
CECT findings	
Antral wall thickening	25 (50)
Diffuse wall thickening	2 (4)
Antral mass	5 (10)
Others	13 (26)
Normal	5 (10)

DISCUSSION

There was a spectrum of median age incidence reported indifferent parts of the world. In the western world, it was 71 years in the USA. In Asian countries, median ages in different countries were low. For example, in Japan it was 61 years,⁵ in Pakistan 48 ± 4.47 years, and in Saudi Arabia 47 years. In our study, the mean age was 51.76 ± 10.81 years, which was near similar to the study done in South India (54.13 ± 12.53 years) and in Mizoram (male 58 and female 57 years), and male:female ratio was 2.7:1, where as in Mizoram, it was 2.3:1,⁶ in Kashmir 3.3:1, in Saudi Arabia 2.2:1,⁷ and in Pakistan 1.5:1. Occupation and education has been studied as possible risk factors for gastric cancer. Case-control study conducted in Mumbai, observed that male agricultural workers had 50% excess risk (OR-1.5; 95%CI - 1.1-2.6) as compared to unskilled laborers or mill workers^[4]. Though our study population was a heterogenous mix of agricultural workers, daily wage earners and others (like housewives, rickshaw pullers, taxi drivers etc.), farmers constituted 24% of the study sample. In a study done by Kabir et al., abdominal pain (100%), vomiting (78%), dysphagia (24%), and weight loss (62%) were predominant symptoms pertaining gastric carcinoma.⁹ Aird et al. were the first to notice the correlation between gastric cancer and blood group A. The association between blood group A and gastric cancer has been mentioned in the studies of several groups. However in our study sample blood group B was most common which is contrary to the above findings. This may be due to small sample size.

In a review of 18365 patients by the American College of Surgeons, common presentations were weight loss (66.6%), abdominal pain (51.6%), nausea/vomiting (34%), anorexia (32%), and melena (20.2%). Again Qurieshi et al. showed common presenting symptoms as weight loss (35%), dyspepsia (76%), anorexia (35%), and vomiting (35.8%).¹⁰ Saha et al.¹³ in their study showed that abdominal pain (66.2%) was the commonest symptom followed by weight loss (43.3%), indigestion (45.9%), anorexia (39.9%), nausea/vomiting (34.2%),

postprandial pain (29%), and melena (9.5%). According to our study weight loss was the commonest complaint (72%) followed by dyspepsia (70%) and abdominal pain (60%). Nausea and vomiting was present in 56% of the patients while 40% of the study sample complained of postprandial abdominal fullness. 10 (20%) patients had palpable lump in abdomen while 9 (18%) patients had abdominal tenderness. Presence of palpable lump is an advanced feature and this was true in our case as 6 out of these 10 patients were in stage 3 and 1 had stage 4 disease. Our findings were similar to the findings of the review done by American College of Surgeons. Also associated complaint of generalized weakness was present in 62% of the study population while 12% and 24% of the study population presented with hematemesis and melena respectively. This has not been shown by any other Indian study. Various reports revealed progressive increase in proximal stomach cancer and concomitant decline in distal stomach cancer in the western world.^{11,12} Reports from Asian countries were conflicting. Japanese and Korean population had predominant incidence of noncardia cancer, whereas an Iranian study showed the predominance of cardia cancer. Differences in some dietary pattern and use of tobacco and alcohol have been considered as potential risk factors. In a study from Hyderabad comparing 94 gastric cancer patients and 100 normal age- and sex-matched controls, smoking ($P < 0.01$) and alcohol ($P < 0.05$) were significantly associated with gastric cancer.¹⁸ Though we did not look specifically into the risk factors, a high percentage of our study population was smokers by habit (76%).

According to our study pyloric antrum (36%) was most common site of involvement (51.9%) followed by body (16%) and fundus (12%). This findings were identical to those found by Saha et al. group. Recent study from Kerala in India showed that though predominant site of cancer was antral mucosa, there was a trend towards proximal shift. Cherian et al. showed no change in site specificity of carcinoma of stomach in South Indian population.¹⁴

Again Qurieshi et al. showed that in the Kashmiri population, incidences of cancer in proximal, mid, and distal stomach were 42%, 6.2%, and 45.7%, respectively.¹⁰ Afridi et al. reported growth at cardiac end in 33%, pylorus and antrum in 40%, linitis plastica in 13.3%, and only body and body and pylorus in 6.7% of patients.⁸ Macroscopically, gastric cancer has been classified into 4 types: type one: polypoidal lesion, type two: fungating lesion, type three: ulcerated lesion, and type four: infiltrating lesion on the gastric wall or linitis plastica lesion. But there is considerable overlap between the above different types. Qurieshi et al. showed 35.5% ulceroproliferative, 26% proliferative, 31% ulcerative, and 7.4% infiltrative lesions during endoscopic procedure performed in Kashmiri patients.¹⁰ Another study done by Kabir et al. showed that ulcerative lesion was 56%, ulceroproliferative lesion 10%, and polypoidal lesion

34%.¹⁵ As per our study ulceroproliferative lesion was commonest (50%) followed by ulcerative lesion (26%).

The histological classification of gastric carcinoma is based on Lauren's criteria, which describes that gastric carcinoma is of two major subtypes: (1) Intestinal subtype (2) Diffuse. Third common type, mixed type (indeterminate type), is also a common variant.¹⁷ Relative frequencies are approximately 54% for intestinal type, (32%) for diffuse type, and (15%) for indeterminate type.¹⁶ Regarding histopathological diagnosis, Afridi et al. showed that two-thirds of (66.6%) patients had diffuse subtype, 20% had intestinal subtype, and 13.3% gastric lymphoma.⁸ On the other hand, Qurieshi et al. showed 38.2% poorly differentiated adenocarcinoma and 60% moderately differentiated adenocarcinoma.¹⁰ In contrary to the Saudi study,⁷ our study showed that intestinal, diffuse, and indeterminate subtypes were 16%, 32%, and 52% respectively. Majority of the adenocarcinomas of our study sample fell under NOS category (42%) while the incidence of poorly differentiated carcinomas, moderately differentiated carcinomas and well differentiated carcinomas were 36%, 16% and 6% respectively. The commonest CECT finding was presence of antral wall thickening in (50%) of the study population. 20 patients had stage 1 disease while 12 patients had stage cancer. A significant number of patients (36%) had locally advanced disease on final staging. Out of 50 patients 42 had a resectable growth while the rest was found unresectable. Out of these 42 patients, curative resection was possible in 36 patients while the rest underwent either palliative resection or palliative bypass procedure.

CONCLUSION

This study points out the fact that most of our patients present in late stage with adverse clinicopathological factors. The median age group of our population is lower than those in the west. Most of the patients come from rural background with constellation of more than one symptoms, out of which weight loss and dyspepsia predominates. The incidences of weight loss, dyspepsia, nausea and vomiting, anorexia were higher as compared to previous studies. A good no of patients presented with complaints of generalized hematemesis and melena. This has not been shown in other Indian studies. The proximal shift in the site of cancer as found out by other Indian investigators was not found in our study population. Curative resection was possible only in 36 patients while the rest underwent palliative procedures. Hence there is a need for screening protocol to identify our patients at earlier stages of their disease.

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