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Modes of Presentation, Diagnostic Difficulties and Pattern of Management of Carcinoma of Stomach: Study of 100 Cases Admitted in SBMCH, Barisal

Dr. Joy Zakharia Rab[1*], Dr. Mohammed Sultan Mahmod[2], Dr. Md Rezaul Kabir[3]

[1]Junior Consultant (Surgery), 250 Bed Sadar Hospital, Patuakhali, Bangladesh
[2]Assistant Professor, FCPS (Surgery), Patuakhali medical College, Patuakhali, Bangladesh
[3]Assistant Professor, MBBS, FCPS (Surgery), Sher E Bangla Medical College, Barishal, Bangladesh

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***Corresponding author:** Dr. Joy Zakharia Rab
Junior Consultant (Surgery), 250 Bed Sadar Hospital, Patuakhali, Bangladesh

Abstract **Original Research Article**

Background: Gastric carcinoma is the second most common cancer worldwide with a frequency that varies greatly across different geographic locations. ***Objective*:** The purpose of this study was to find different modes of presentation, diagnostic difficulties and pattern of management of carcinoma of stomach. ***Methods*:** This study was conducted from January 2009 to December 2009 among 100 cases of carcinoma stomach admitted in surgical units of SBMCH, Barisal. ***Results*:** Here, 49% of cases of gastric carcinoma were found in age group 51-60 years. 29% of cases in ≥ 61 years of age group. The youngest patient was 36 years old and the oldest one was 72 years. The mean age was 55.61 years. 72 males and 28 females had gastric carcinoma. Male: Female ratio was 2.57:1. Maximum 81% of cases presented with abdominal pain, 66% with generalized weakness, 64% with vomiting, 52% of cases with loss of appetite leading to weight loss 47% of cases with an abdominal lump, 12% with haematemesis and melaena and 7% with dysphagia. 81% patients had tenderness in the epigastric region, 58% cases anemia, 47% cases palpable lump, 35% cases of succussion splash, 29% cases of visible peristalsis, 9% cases ascites, 4% cases palpable liver, 3% cases jaundice, 2% cases left supraclavicular LN. On DRE none of the cases had rectal shelf of Blummer. Maximum (58%) had poorly differentiated adenocarcinoma, 29% moderately differentiated adenocarcinoma, and 13% well differentiated adenocarcinoma. Within these 93 cases 55 cases (59.1%) had palliative gastrojejunostomy, 27 cases (29%) had lower partial gastrectomy, 9 cases (9.7%) had open and close procedure with biopsy and 2 cases (2.2%) had total gastrectomy. A maximum 4.3% of operated cases had wound infection. The incidence of bronchopneumonia left ventricular failure, and wound dehiscence was 2.15%. The incidence of atelectasis and bleeding was 1.07%. ***Conclusion*:** The study showed an overall picture of the mode of presentation, diagnostic difficulties, and management pattern of carcinoma stomach. In our country, there is no cancer registry system. So, it is difficult to attain information about a specific type of malignancy. Further studies would be helpful for better observation.

Keywords: Modes of Presentation, Gastric Carcinoma, Stomach.

INTRODUCTION

Gastric carcinoma was the most common cancer worldwide in the 1980s [1]. At present the incidence of gastric carcinoma is declining [2]. It is now the second most common cause of cancer death and accounted for 7,36,000 deaths in the year 2008 [3]. There has been a worldwide decrease in the incidence of gastric carcinoma over the last 30 years [16]. The exact reason for declination in the incidence of gastric cancer is unknown but has been attributed in part to the widespread use of refrigeration, which leads to the consumption of refrigerated food in preference to spiced and pickled food. Beneficial effects of refrigeration are increased consumption of fresh fruits and vegetables; decreased intake of salt, which had been used as a food preservative; and decreased contamination of food by carcinogenic compounds arising from the decay of unrefrigerated meat products [4].

Each year there are 700,000 new cases of gastric cancer worldwide [5]. Higher incidences have been reported from Japan, China, South Korea, and some part of South America and Lower incidences have been reported from Western Europe, USA, India, Pakistan, and Thailand [5][6]. Most gastric cancers arise sporadically, though some familial cases are associated with hereditary non-polyposis colon cancer [5].

Gastric cancer prevalence increases with age [7]. Carcinoma of the stomach is rare under age 40 years. The mean age at diagnosis is 63 years [8]. The male-female ration is 2:1 [8]. The incidence of gastric carcinoma shows racial variation. It is twice as common in black as in whites [9]. Gastric cancer is more common in low socioeconomic status [1].

Most patients with gastric cancer present at an advanced stage [5]. Gastric carcinoma lacks specific symptoms early in the course of the disease. Patients often ignore early vague epigastric discomfort and indigestion, which are often for gastritis, leading to symptomatic treatment for 6 to 12 months before diagnostic studies are offered [1]. Physical signs such as palpable abdominal lump develop late in the course of the disease and are most commonly associated with locally advanced or metastatic disease [1].

Gastric cancer is actually an eminently curable disease provided that it is detected at an appropriate stage and treated adequately. It rarely disseminates widely before it has involved lymph nodes and therefore, there is an opportunity to cure the disease prior to dissemination. Early diagnosis is therefore the key to success [10]. Surgical excision offers the only possibility for cure or long term survival [11]. Some series have reported overall 5 year survival rate of about 5% [10]. Japanese surgeons were the first to implicate extended lymphadenectomy in an effort to reduce local recurrence and improve survival [12]. Controversies exists with regard to role of extended lymph node dissection [13].

OBJECTIVE

General objective

This study was conducted on Modes of presentation, diagnostic difficulties and pattern of management of carcinoma of stomach.

Specific objectives

1. To find out the various ways of presentation of patient with carcinoma stomach in our country.
2. To evaluate the correlation between the clinical features and endoscopic findings.
3. To evaluate the treatment outcome in various options of gastric surgery.

MATERIALS AND METHODS

Type of study	Prospective study
Place of study	Surgical in patient department of SBMCH, Barisal
Study period	January 2009 to December 2009
Sample size	100 cases of carcinoma stomach admitted in surgical units of SBMCH, Barisal.
Sampling technique	Purposive sampling

Inclusion Criteria

1. Presenting features of gastric outlet obstruction, with or without palpable epigastric lump, severe anemia, gross weight loss, haematemesis and melaena etc.
2. Endoscopic evidence of malignant looking ulcer or growth in the stomach.
3. Histopathological evidence of malignancy in tissues taken from stomach.
4. Patient of any age and sex.

Exclusion criteria

1. No endoscopic evidence of gastric malignancy.
2. No histopathological evidence of malignancy.

Ethical consideration

Informed written consent was taken from all study subjects after full explanation of the nature, purpose, and potential risks of all procedures before conducting the study. Ethical clearance was also taken from the institutional ethical committee.

Data collection

Data were collected in a pre-designed data collection sheet and then compiled accordingly.

Statistical analysis

Statistical analysis was done using the computer-based software SPSS program. P value <0.05 was considered significant for this study.

RESULTS

Table 1 shows that, in this study, 49% of cases of gastric carcinoma were found in the age group 51-60 years. 29% of cases in ≥ 61 years of age group. The youngest patient was 36 years old and the oldest one was 72 years. The mean age was 55.61 years, the standard deviation was 8.29 years. See the table below-

Table 1: Age group of patients (n=100)

Age groups	Number of patient	Percentage (%)
≤ 40 years	7	7%
41-50 years	15	15%
51-60 years	49	49%
≥ 61 years	29	29%
Total	100	100%

Figure 1 shows incidence of gastric carcinoma predominates in male. 72 males and 28 females had gastric carcinoma. Male: Female ratio was 2.57:1. See the figure below-

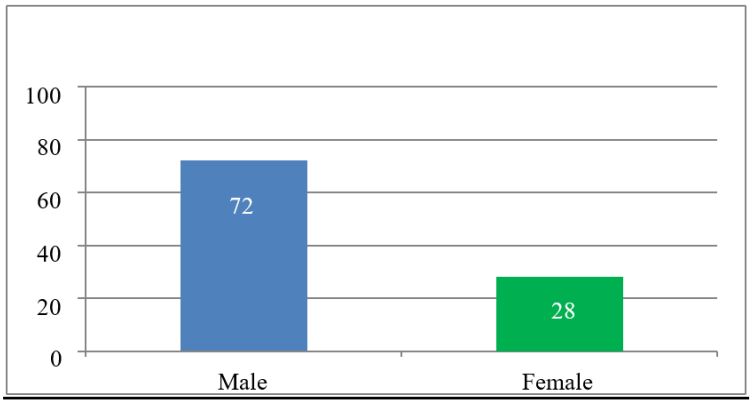

Figure 1: Bar diagram showing distribution of patients according to sex

Table 2 shows that 78 case were from rural area and 22 cases from urban area, with a ratio of rural and urban location of 3.54:1. See the table below-

Table 2: Residential status, (n=100)

Residence	Number of patient	Percentage (%)
Rural	78	78%
Urban	22	22%
Total	100	100%

Table 3 shows gastric carcinoma was higher in smoker (77%) than non- smoker (23%) group. See the table below-

Table 3: Smoking habit, (n=100)

Smoking habit	Number of patients	Percentage (%)
Smoker	77	77%
Non-smoker	23	23%
Total	100	100%

Table 4 shows a maximum of 37% of patients were farmers, 25% were housewives, 14% were daily laborers, 11% were fishermen, 1% were maid servants. The rest of the 12% of patients was in other occupation such as rickshaw puller, carpenter, mudi business, etc. See the table below-

Table 4: Occupation of the patients (n=100)

Occupation	Number of patient	Percentage (%)
Farmer	37	37%
Housewife	25	25%
Fisherman	11	11%
Daily Labour	14	14%
maid servant	1	1%
others	12	12%
Total	100	100%

Figure 2 shows in this study maximum 81% of cases presented with abdominal pain, 66% with generalized weakness, 64% with vomiting, 52% of cases with loss of appetite leading to weight loss 47% of cases with abdominal lump, 12% with haematemesis and melaena and 7% with dysphagia. See the figure below-

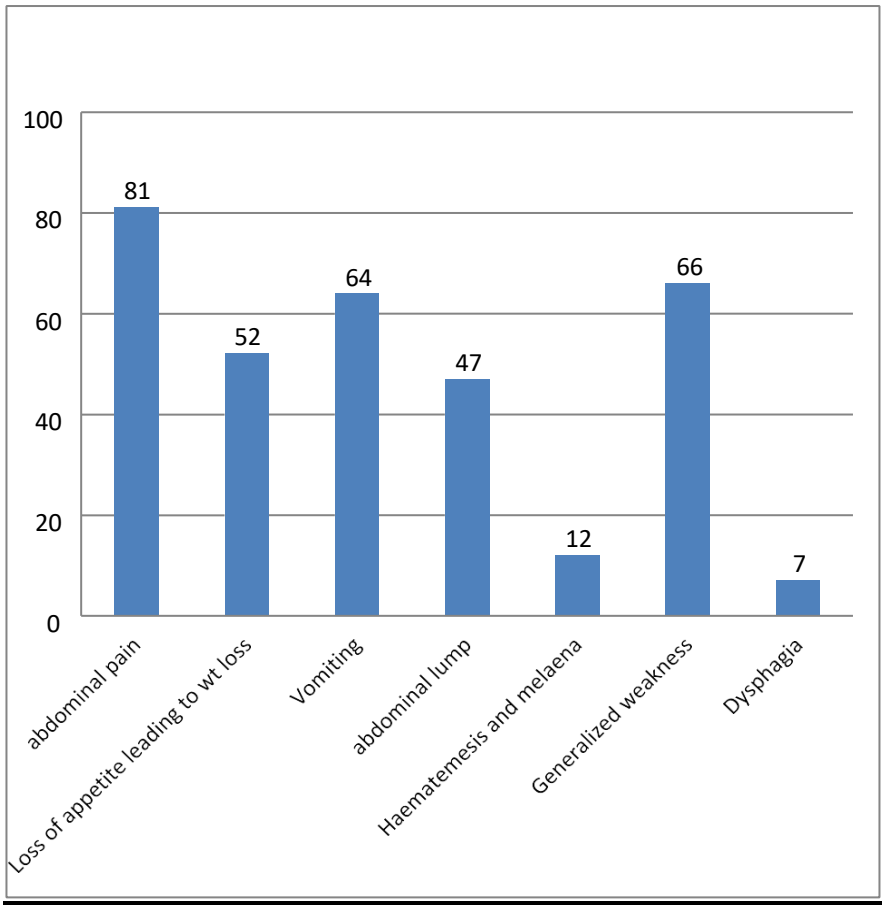

Figure 2: Bar diagram of distribution of patients according to clinical presentation

Table 6 shows that in this series, 81% patient had tenderness in epigastric region, 58% cases aneamia, 47% cases palpable lump, 35% cases succession splash, 29% cases visible peristalsis, 9% cases ascites, 4% cases palpable liver, 3% cases jaundice, 2% cases left supraclavicular LN. On DRE none of the cases had rectal shelf of Blummer. See the table below-

Table 6: Physical findings, (n=100)

Physical findings	No. of patient	Percentage (%)
Tenderness in epigastric region	81	81%
Anaemia	58	58%
Jaundice	3	3%
Palpable lump	47	47%
Left Supraclavicular LN	2	2%
Visible peristalsis	29	29%
Succussion splash	35	35%
Ascites	9	9%
palpable liver	4	4%
Rectal shelf of Blummer	0	0%

Table 7 shows 58% of cases had Hb < 50%, 32% of cases elevated ESR > 30 mm in 1 hour, 8% of cases had abnormal urine analysis, 7% of cases had leucocytosis, 6% had abnormal liver function test. None

of the cases showed any abnormalities in chest X-rays. See the table below-

Table 7: Results of routine investigation (n=100)

Investigation	Frequency	Percentage (%)
Hb < 50%	58	58%
Elevated ESR > 30 mm in 1 hour	32	32%
Leucocytosis WBC count > 11,000/cumm of blood	7	7%
Abnormal urine analysis (pus cell/albumin etc)	8	8%
Abnormal chest X-ray	0	0%
Abnormal liver function test	6	6%

Table 8 shows Endodoscopic biopsy was done in all 100 cases, all were adenocarcinoma. Maximum (58%) had poorly differentiated adenocarcinoma, 29% moderately differentiated adenocarcinoma and 13% well differentiated adenocarcinoma. See the table below-

Table 8: Endoscopic biopsy report (n=100)

Endoscopic biopsy report	No. of patient	Percentage (%)
Well differentiated	13	13%
Moderately differentiated	29	29%
Poorly differentiated	58	58%
Total	100	100%

Table 9 shows surgical treatment was offered to 93 cases out of 100 cases (93%). Within these 93 cases 55 cases (59.1%) had palliative gastrojejunostomy, 27 cases (29%) had lower partial gastrectomy, 9 cases (9.7%) had open and close procedure with biopsy and 2 cases (2.2%) had total gastrectomy. See the table below-

Table 9: Surgical treatment, (n=93)

Surgical treatment	No. of patient	Percentage (%)
Total gastrectomy	2	2.2
Lower partial gastrectomy	27	29
Palliative gastrojejunostomy	55	59.1
Open and close procedure with biopsy	9	9.7
Total	93	100

Table 10 shows a maximum of 4.3% of operated cases had wound infection. The incidence of bronchopneumoia, left ventricular failure, and wound dehiscence was 2.15%. The incidence of atelectasis and bleeding was 1.07%. See the table below-

Table 10: Postoperative complication (n=93)

Complications	No. of patient	Percentage (%)
Bronchopneumonia	2	2.15%
Atelectasis	1	1.07%
Bleeding	1	1.07%
Wound infection	4	4.3%
Left ventricular failure	2	2.15%
wound dehiscence	2	2.15%

DISCUSSION

Gastric carcinoma is the second most common cancer worldwide with a frequency that varies greatly across different geographic locations [14]. A high incidence of gastric cancer has been reported from South East Asia, most commonly from Japan, China, and South Korea [15]. Higher incidence is also found in Southern and Central America [16]. Within Western Europe, North America and Australia, the incidence has been falling [17]. In our country there is no exact data regarding the incidence of gastric carcinoma. In Japan, mass screening program for gastric cancer enables them to reduce the morbidity and mortality comparative to the European countries [18].

In our country it is very difficult to diagnose gastric carcinoma at an early stage and most of the patients coming to hospital presented with advanced stage of the disease; when there is little or no chance for curative resection. In present study, maximum 49%

cases were from age group 51-60 years. Mean age being 55.61 years (SD = 8.29 years). In a study done by Wanebo *et al*., [19], showed 51.3% of cases were from more than 70 years age group. Baten [20] found 52% cases from age group 51-60 years. Hossain [21] found 48.33% cases from 51-60 years age group. Though there is difference in figures from this study and study done abroad, results are similar with studies done in Bangladesh.

In this study, from a total 100 case, 72 cases were male and 28 cases were female. Male to female ratio being 2.57:1 In a study done by Baten [20], found that male and female ratio was 2.57:1. Study done by Wanebo *et al*., [19], showed that male to female ratio was 1.13:1. Another study done by Hossain [21] showed that male to female ration is 2.43:1.

In present study, Most of the cases (78%) in this series came from rural origin. It correlates with the general population distribution of our country. Remaining 22% cases came from urban areas. Ratio of rural to urban population in this study was 3.54:1.

Majority of the cases 37% in this study were farmers. Other common occupations were fishermen 11%, daily labour 12%. Females were mainly 25% housewives, 2% were working as labour and 1% as maid servant.

Trendaniel [22] found that tobacco smoking has a positive association with gastric carcinoma. According to Crawford [23], cigarette smoking imparts a 1.5 fold to 3 fold increased risk of gastric cancer. In the present study 77% cases were smokers. Tsugane [24] studied association of gastric cancer with diet.

In a study by Islam [25], 80% patients presented with epigastric pain, 58% with vomiting, and 46% with abdominal lump. In present study, 81% cases presented with abdominal pain, 66% with generalized weakness, 64% with Vomiting, 52% with Loss of appetite leading to wt loss, 47% abdominal lump, 12% Haematemesis and melaena and 7% with dysphagia. These findings are more or less similar with that of a study done by Islam [25].

Physical signs develop late in the course of disease and are most commonly associated with locally advanced disease [1]. Talukder [26] in his study found 80% cases with anaemia, 70% with tenderness in epigastric region, 44% cases with palpable abdominal lump, 42% cases with succussion splash, 40% with visible peristalsis16% with ascites, 8% cases with enlarged liver. 2% cases with jaundice and 2% cases with Virchow's gland. In this series, 81% patient had tenderness in epigastric region, 58% cases anaemia, 47% cases palpable lump, 35% cases succussion splash, 29% cases visible peristalsis, 9% cases ascites, 4% cases palpable liver, 3% cases jaundice, 2% cases left supraclavicular LN.

Endoscopy is regarded as the most sensitive and specific diagnostic method in patients suspected of harboring gastric cancer [27]. Endoscopy allows direct visualization of tumour location, the extent of mucosal involvement, and biopsy (or cytologic brushings) for tissue diagnosis [28]. In a study done by Bringaze *et al*., [29] found 60% lesions in the antrum, 27% in body and 13% in fundus. A study in Bangladesh done by Islam [25] showed that 80% growth at the antrum, 16% growth in the body of stomach and 4% growth in fundus and cardia. In the present study, 74% growths were found at the antrum, 23% in the body of stomach, 3% in fundus and cardia. Findings of this study were similar with that done by Islam [25]. But, there were slight variations in findings between this study and study done by Bringaze *et al*., [29].

Regarding the grading of the tumour, study done by Talamonti *et al*., [13] shows, 23% lesions were well differentiated, 35% moderately differentiated and 42% poorly differentiated. Talukder [26] found 23.40% lesions were well differentiated, 21.21% moderately differentiated and 55.31% were poorly differentiated. In this study, 13% lesions were well differentiated, 29% moderately differentiated and 58% were poorly differentiated. The order of the findings (poorly differentiated > moderately differentiate > well differentiated) were same in comparison with studies in Bangladesh and abroad.

When correlations were done among different grading of the tumour and clinical presentations; it showed in well differentiated adenocarcinoma most common feature (69.2%) was generalized weakness followed by abdominal pain (61.5%). In moderately differentiated adenocarcinoma maximum cases 79.3% presented with abdominal pain. In poorly differentiated adenocarcinoma majority of the cases (86.2%) presented with abdominal pain. So prominent features present in every type of grading were abdominal pain, vomiting and generalized weakness.

In a total of 93 operated cases 59.14% cases showed mobile growth with serosal involvement. 19.35% had mobile growth with no serosal involvement, 11.83% fixity with surrounding organ and 9.68% had growth fixed with the posterior wall. 92.47% cases had regional lymph node involvement. Liver metastases were present in 5.37% cases. Peritoneal seeding and involvement of pelvic peritoneum was present in 10.75% and 4.3% cases respectively.

Surgical treatment was offered to 93 cases out of 100 cases (93%). Within these 93 cases 55 cases

(59.1%) had palliative gastrojejunostomy, 27 cases (29%) had lower partial gastrectomy, 9 cases (9.7%) had open and close procedure with biopsy and 2 cases (2.2%) had total gastrectomy. The value of preoperative staging lies in identifying patients who will not benefit from resectional or bypass surgery [30]. In that study [30] it was found laparoscopy offers a safe, sensitive and specific method of staging of gastric cancer prevented unnecessary surgery.

Regarding postoperative complication maximum 4.3% operated cases had wound infection. Incidence of bronchopneumonia, left ventricular failure, and wound dehiscence was 2.15%. Incidence of atelectasis and bleeding was 1.07%. In case of total gastrectomy (n=2) 100% uneventful recovery occurred. In case of lower partial gastrectomy uneventful recovery occurred in 85.2% cases. 3.7% case (1 out of 27) developed bleeding, wound infection and wound dehiscence. Only the patient with bleeding died, and others recovered. In palliative gastrojejunostomy uneventful recovery occurred in 87.3% cases. All of the patients recovered later on. In open and close operation with biopsy 1 case out of 9 (11.11%) developed wound infection, who later on recovered.

CONCLUSION

The present study showed overall picture of mode of presentation, diagnostic difficulties and its management pattern of carcinoma stomach. In our country there is no cancer registry system. So, it is difficult to attain information about specific type of malignancy. The sample size of the study was too small. So finding might be different if larger samples were taken. Again, all patients were from southern districts of Bangladesh which might not reflect the total scenario of the country.

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