

Presentation and Immediate Outcome of Surgical Treatment of Patients with Carcinoma of the Stomach – A Comparative Study between Young and Elderly patients

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Summary:

Carcinoma of the stomach is a common malignancy and have a high mortality. Incidence under the age of 45 is comparatively low but appear more aggressive then elderly group. This study was designed to describe the presentation and operative findings in the two groups of patients and to record the outcome of surgical management in these patients.

A total of 86 cases were included in this study. 14 were from below 40 years (young group) and 72 were above 40 years (elderly group). Young patients had less definitive symptoms than elderly group. Pain (85.71%) and vomiting (78%) were the most prominent symptoms in both the groups. But in elderly a significant number 54(75%) of cases had anorexia. Lump and visible peristalsis were present in both groups in approximately similar proportion. Histopathologically younger patients had more aggressive disease than the elderly group..

Introduction:

Carcinoma of the stomach is the second most common cancer worldwide. Higher incidence have been reported from Japan, China and South Korea and a lower incidence have been reported from India, Pakistan and Thailand¹. Some series have reported overall 5 year survival rate of about 5%². Carcinoma of the stomach is rare under age 40 years, from which point the risk gradually increases with age. The mean age at diagnosis is 63 years³. It is about twice as common in men as in

The operability in carcinoma of the stomach was more in young group probably due to physical fitness of patient. In both the groups antrum was the commonest site of malignancy. The incidence of malignancy in body was more in young patients. In young group tumor status was T₄ in 54.5% and in elderly group 56% was in T₄ stage. 80% had lymph node involvement in both the groups. Resection was possible in young group in about 90% and gastrojejunostomy in 9.09% cases. Conversely, in the elderly group resection was possible in 58% and gastrojejunostomy was done in 42% cases. Total gastrectomy was done in 18.18% in young group and 4% in elderly group. Another important finding was partial gastrectomy was done in 72.73% in young but 46% in elderly only. The mortality was more (18.2%) in young group in comparison to (10%) in elderly.

Gastric carcinoma was found more aggressive in young with high mortality and morbidity. Efforts should be taken for early diagnosis and prompt surgical treatment.

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women³. Gastric cancer rarely disseminates widely before it involves the lymph nodes and therefore some believe this is an opportunity to cure the disease prior to dissemination². It occurs in the younger individuals with a much higher rate of mortality and morbidity⁴. Early diagnosis is therefore the key to success in management of patients presenting with this disease. The only treatment modality to cure the disease is resectional surgery and chemotherapy². In a study in Chittagong Medical College the incidence of carcinoma of the stomach in hospitalized patients was 6.96%⁵. The risk factors of gastric carcinoma in Chittagong and its sea belt area was alcohol, dried and salted fish intake. Although the etiological factors and pathogenesis of gastric carcinoma are not yet fully understood⁶, the most important pathological determinant to evaluate clinical and prognostic significance is the depth of penetration of stomach wall by the lesion. The others

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are histological types, location of primary site and metastasis.

A study was conducted to compare the clinical presentation, operative findings and outcome of surgery between two age groups of patients presenting as carcinoma stomach.

Materials and Method:

This was a prospective quasi experimental study. The study was carried out in the Department of Surgery, Chittagong Medical College & Hospital. The study was undertaken during the period of May 2002 to December 2003. Cases were selected consecutively following the inclusion and exclusion criteria. Evaluation of patients was based on history, physical examinations and investigations. For analysis of results patients were divided into two groups as Group A, below 40 years and Group B above 40 years of age .

a) Inclusion Criteria: Patient of either sex admitted with presentations suggestive of carcinoma of the stomach and histopathologically confirmed from tissue obtained by endoscopy.

b) Exclusion Criteria: Histopathologically negative cases were excluded.

Patients were admitted from surgical out-patient departments after clinical diagnosis of Carcinoma of the stomach. Some of these patients had tissue confirmation before being admitted. Referred patients from medical units after diagnosis of Carcinoma of the stomach were also included.

Preoperative clinical assessment included detailed history regarding presenting illness, dietary pattern and personal habits. Meticulous systematic physical examination was performed in each case . Ultrasonography was done to detect secondary deposits in liver , involvement of lymph nodes and presence of ascitis. Radioisotope scan of liver and bone was obtained in relevant cases. All relevant information were recorded methodically and carefully as far as possible in pre-designed data sheet for each individual case.

During laparotomy tumor size, serosal involvement, hepatic metastasis, lymph node involvement including group, size and number, peritoneal metastasis and ascitis were observed and recorded in detail . Specimen was obtained in every operated case for histopathological reconfirmation.

Operability was judged on the basis of clinical and investigation findings. All had palliative surgery . The operative procedures included total gastrectomy, proximal or distal partial gastrectomy, subtotal gastrectomy and gastrojejunostomy along with removal of lymph nodes based on findings at laparotomy.

Post-operatively all patients were monitored carefully and complications were recorded. All the patients got 1st cycle chemotherapy as per advice of Oncologist.

Statistical analysis

Statistical analysis was done manually and by using computer statistical software package SPSS-10.0 for windows 2000 (SPSS-Statistical Programme for Scientific Study). ‘Unpaired t’ tests were done where applicable. P values less than 0.05 was considered as significant, by setting the minimal level of statistical significance at 5%.

Ethical issues

Permission for the study was duly obtained from Ethical Committee of Chittagong Medical College. On ethical consideration the patients were first explained about the treatment procedures with their possible outcome. Informed written consent was taken from them.

Results:

A total of 86 patients were included in the study. Only 14 (16.3%) cases were below 40 years (Group A) and 72 (83.7%) cases were above 40 years (Group B). The male: female ratio was 2.58:1

Table-I

Comparison of Clinical Presentation of two groups of patients of Carcinoma of the stomach

Symptoms	Group A* n=14	Group B* n=72
Dyspepsia	02(14.28)	34 (47.22)
Pain in the abdomen	12(85.71%)	52(72.22)
Vomiting	11 (78%)	54 (75)
Hemetemesis and Melena	00	05(6.94)
Lump in the abdomen	06(42.85%)	18(25)
Anorexia	07 (50%)	54 (75)
Gen. weakness	07(50%)	43 (59.72)
Personal habits		
Smoking	6 (43 %)	41 (57%)
Smoked and Salted fish	7 (50%)	26 (36%)

• Figures in parentheses represent percentages

In Group A, 12 (85.7%) patients and in Group B, 52 (72.2%) patients had pain in abdomen. Vomiting was present in 78% and 75% cases of group A and B respectively.

07 (50%) patients of group A and 26 (36.11%) patients of group B consumed smoked and salted fish. Similarly 06 (42.86%) group A and 41 (56.94%) group B cases were smoker.

Table-II

Clinical Examination findings of two groups of patients (n=86)

	Group A* (n=14)	Group B* (n=72)
General Examination Findings		
Anemia	09(64.28)	67(93.06)
Jaundice	01(7.14)	02(02.78)
Dehydration	05(45.71)	08(11.11)
Supraclavicular LN	01(7.14)	02(02.78)
Loco-regional Examination Findings		
Lump	07(50)	43(59.72)
Ascites	02(14.28)	13(18.06)
Liver	00	04(5.56)

• Figures in parentheses represent percentages

Table no III shows that 67 (93.06) cases of group B was anaemic. Lump was present in 07(50%) of group A patients and 43(59.71%) group B patients, and visible peristalsis 05(35.71%) and 23 (31.94%) cases respectively.

Ba-meal study was done in all the 86 cases. 06(57.14%) group A and 34 (66.67%) group B cases were positive for carcinoma of stomach by Ba-meal examination.

Endoscopic Examination

On endoscopy 92.86% of group A and 95.83% of group B patients had lesions suggestive of gastric carcinoma. Tissue biopsy was taken from all the cases. Poorly differentiated carcinoma stomach was found in 35.71% of group A and 41.14% of group B patients. The histopathological findings were inconclusive only in 1 patient of group A and 16 (22.86) cases of group B patients.

Surgical management

Exploration was done in 61 out of 86 patients of carcinoma of the stomach. Palliative procedure was possible on 78.57% of group A patients 69.44% in group B patients.

In both the groups' maximum number of tumour was in the antrum. The growth was present in the antrum in 63.6% of cases in group A and 78% in group B. 36.4% patients of Group A and 14% patients of Group B patients had growth in body of the stomach. Growth in cardia (8%) was found only in elderly (group B) patients.

Tumor status as observed during exploration, was recorded according to TNM classification. T₃ stage was present in 05 of 11 in group A (45.45%) and 13 of 50 (26%) of cases present in elderly (group B) patients. T₄ status was present in 06 of group A (54.55%) and 28 (56%) of 50 cases of group B. Findings were significant (p value <0.05). This comparison is shown in Table IV.

Table-III

Endoscopic Biopsy Results of two groups of patients

		Group A (%)N=14	Group B (%)N=70
Endoscopic Biopsy Report	Well differentiated	04(28.57)	06 (08.57)
	Moderately differentiated	02(14.29)	14(20)
	Poorly differentiated	05(35.71)	33(41.14)
	Diffuse	02(14.29)	01(01.430)
	Inconclusive	01(07.14)	16(22.86)
USG	Liver metastasis	0	4
	Ascitis	4	15
	Lymphadenopathy	6	37
Ba meal	Suggestive	6 (33%)	34 (66.6%)

• Figures in parentheses represent percentages

Table-IV

Tumor Status in TNM classification in two groups of patients with carcinoma of the stomach (according to laparotomy Finding n=61)

Tumor status *	Group A (%)	Group B (%)
T ₂	00	09(18)
T ₃	05(45.45)	13(26)
T ₄	06(54.55)	28(56)
	11	50

*Note - there was no patients with T1 tumor
• Figures in parentheses represent percentages

Lymph node involvement was present in 09(81.82%) of Group A and 46(92%) of Group B cases. Peritoneal involvement was present in 01 (09.09%) and 09 (18%) cases of Group A and Group B respectively. Hepatic involvement was found in 02(18.18%) and 09(18%) of cases of Group A and Group B respectively. Nodal involvement of these patients with carcinoma of the stomach has been presented and compared in table V.

Table-V

Showing difference in Nodal Involvement (as per TNM classification) in two groups of gastric cancer patients

Lymph node status	Group A (%)	Group B (%)
N ₀	02(18.18)	03(8)
N ₁	03(27.27)	18(30)
N ₂	06(45.45)	28(26)
N _x	00	01(06)
Total	11	50

As the patients presented with incurable tumor mass exploration was done with palliative intent. Resection was possible in 10 (90.91%) young patients (group A) and 29 (58%) elderly patients (group B). Procedures performed has been tabulated in table VI. 72.7% group A patients were treated by distal partial gastrectomy. Whereas group B patients were treated by distal partial gastrectomy in 46% and gastrojejunostomy in 42% cases. p value >0.05.

Table-VI

Extent of Resection in Patients with Ca-stomach

Procedure	Group A (%)	Group B (%)
Total gastrectomy	02(18.18)	02(4)
Proximal partial gastrectomy	00	03(6)
Distal partial gastrectomy	08(72.73)	23(46)
Distal subtotal gastrectomy	00	01(2)
Gastrojejunostomy	01(9.09)	21(42)
Total	11	50

The mortality was 02 (18.18%) among group A and in 05 (10%) in group B. Postoperative complications developed in 16% patients of group B.

Discussion:

A total of 86 histopathologically confirmed cases were included in the present study. Among them 14 cases were included in young group of which 11 cases were operated. In elderly group 72 cases were included and 50 cases were operated .In 22 cases of elderly patients operation could not be done either for refusal of operation or extensive disease involvement .

In the present study the incidence of gastric carcinoma in young group was 16% (14 of 86 patients). .. In one review Milne et al ⁷, about 10% patients were found below 45 years and in another study it was 13.% ⁴ in a series of 130 cases. The patients below 45 years has been grouped as early onset gastric carcinoma (EOGC). ⁷ Though the diagnosis of gastric neoplasm is sometimes reserved in young patients, symptoms observed in this age group did not differ from those in adults ⁽⁸⁻¹¹⁾. Similar observations was also noted in this study. A recent study reported observations that early onset gastric carcinoma (EOGC) has molecular genetic profile different from elderly group of patients where environmental factors are held responsible for carcinogenesis. ⁷ In another study, a statistically significant increase in number of patients below the age of forty years was seen in cancers involving oesophageo gastric junction in Indian subcontinent.¹²

In the present study the main presenting symptoms were abdominal pain and anorexia in both the groups. Another study from Iran revealed abdominal pain and anorexia to be present in 95% of cases ¹³. Comparable pattern of

clinical features were reported from India, Pakistan and Nigeria¹⁴⁻¹⁷

Tobacco smoking has a positive association while increasing consumption of vegetables and dietary products has a protective effect¹⁸. Smoking was the prominent risk factors in both the groups but smoked and salted fish intake was more in younger group. In a cohort study, Poulsen⁽¹⁹⁾ and his co workers found association of proton pump inhibitors (PPI) and H2 receptor blockers with increased incidence of gastric carcinoma. PPI and H2 receptor blockers are available as over the counter drugs and are used randomly and indiscriminately. Effect of these drugs in our population could not be assessed in this study.

Half of the young patients and 43 (59.77%) elderly cases had visible or palpable lump. Other studies showed similar observations in different countries^(4,14-16). Ascites was present in 14.28% and 18.06% cases and hepatomegaly present in 05.56% cases only. Similar observation were reported from neighboring countries. (14-16)

Endoscopy is investigation of choice for diagnosis of gastric carcinoma. Numerous reports had demonstrated that its accuracy of diagnosis was greater than 95%⁽²⁰⁾. Negative results were more common in younger age group in this series. Spiral CT scan has limited ability to identify lymph node metastases but can detect adjacent organ invasion. Whenever possible these modalities may be used for preoperative assessment. Endoscopic ultrasound has been found 80% and 68.8% accurate respectively for Tumor and Nodal status in a study in Korea.⁽²¹⁾ Pre operative assessment of nodal status therefore remains difficult and has low specificity but a combined approach might give better understanding and outcome.

Histopathologically in young patient's malignancy were more aggressive than older group. The percentage of diffuse variety was more in young group and poorly differentiated were more in elderly group.

TNM staging was done in all the operated cases. In both the groups malignancy was in advanced state. T₃ stage tumor was more in young group whereas, T₄ was more common in the elderly group and was statistically significant. Involvement of peri gastric and extra gastric lymph nodes are found directly related to tumor size and depth of invasion. In a Japanese study lymph node

involvement was 0% for tumors less than 1cm, it reached to 46% for peri gastric and 15% for extra gastric nodes for a 4 cm lesion,⁽²²⁾ This also indicates early lymph node metastasis in carcinoma of the stomach. On the other hand a German study found no relationship with the size of lymph node and metastatic infiltration⁽²³⁾. Data from several large series indicate that 60% to 90% of patients had primary tumor presenting with involvement of the serosa or invading adjacent organs⁽²⁴⁻²⁵⁾. In a study in India cancers were diagnosed in an advanced stage and 70% had serosal infiltration¹.

Early reporting and early diagnosis no doubt will improve results of treatment in any type of cancer. In Japan where gastric cancers are diagnosed at an early stage the results are admirable. Kitano has reported 100% resectability with T1A and T1B tumours with 5 year disease free survival of 99.8 for T1a and 98.7% for T1B gastric cancers following laparoscopic intervention.⁽²⁶⁾ The reason for late presentation are many. One important issue in our patients may be due to vague symptoms and casual use of PPI and H2 receptor blockers as self medication. In an attempt to promote early presentation of cancers specially in disadvantaged communities Lyon and workers had an innovative approach of involving people in the community. This could improve reporting of breast cancer and bowel cancer.⁽²⁷⁾ Similar strategy may improve early presentation in gastric cancers as well.

Lymph node involvement was greater in elderly group than young group of patients. The overall lymph node involvement was over 90%. Sunderlands described an 88% incidence of involvement of nodes with the proximal lesions⁽²⁸⁾. This was also observed in this series that lymph node involvement in younger patients were more rapid.

Resection was done in more than 90% young patients and 58% in older group. Resection was possible in significantly higher proportion of young patients. This may be due to involvement of body and involvement of fewer lymph nodes or due to more operative fitness in young group. Another factor might be less number of patients in this group.

The maximum palliative surgery was distal partial gastrectomy. Gastrojejunostomy done in older group was 21 (42%) cases. In other series by pass operation was done in 7.23% and 5% cases⁽²⁹⁾. In the present

study the mortality rate was 02(18%) in young patients and 05 (10%) in older patients. However, none of the operative procedure was statistically significant.

Recommendation:

More focused studies with more cases are required to identify risk factors and surgical outcome in both groups.

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