

Surgical Management of Malignant Gastric Tumours

YAR MUHAMMAD, MARIA MAHMOOD, BAHZAD AKRAM KHAN, FARHAT ABBAS, ABRAR ASHRAF ALI, ABDUL MAJEED CHAUDHRY

ABSTRACT

The aim of our study was to highlight the importance of better surgical outcome if presentation is earlier. Gastric cancer is second most common malignancy of gastrointestinal tract after colorectal carcinoma. The common presentation is pain epigastrium, weight loss, vomiting and anorexia. Patients usually present in advanced disease and only palliative surgery is possible. Commonest type is adenocarcinoma. We conducted a case series of 60 patients who were treated for gastric carcinoma at Mayo Hospital, Lahore from March 2003 to March 2008. The objective of study was to assess the morbidity, mortality and outcome of surgical management. Out of 60 patients included in this study, 27 patients were male and 23 female. Commonest presentation was vomiting 69.9%. Most of the patients presented in advanced disease. Operative procedures include Billroth-I & D1 resection, 20% Billroth II + L.N. dissection (16.6%), total gastrectomy along with reconstruction (6.7%). Most of the patients (23.3%) had palliative procedure in the form of bypass or feeding jejunostomy (56.7%). Only 30.1% presented in early stage of disease and its mortality rate was low. Postop complications recorded were diarrhea 30 patients, bilious vomiting in 24 patients, 2 patients underwent revisional surgery. Surgical outcome is directly related to stage of disease at presentation. Early presentation leads to better outcome.

Key words: Gastric carcinoma, D-resections, H-pylori Gastritis.

INTRODUCTION

In gastrointestinal tract (GIT) malignancies gastric carcinoma is the second most common malignancy after colorectal carcinoma¹. There is increase incidence amongst males with male to female ratio of 2:1 is encountered worldwide. Geographically incidence is high in Japan, Chile, China, Portugal, Russia and Bulgaria².

The most common histological type is adenocarcinoma⁵. Majority of gastric cancer develop as well differentiated and a significant proportion progress to become undifferentiated³. Gastric carcinoma is multifactorial in origin i.e., caused by H. Pylori, spicy-smoked and poorly preserved food, cigarette smoking, low consumption of fruits, vegetables and genetic abnormalities such as P₅₃ mutation⁴.

The presentation is with pain epigastrium, vomiting, weight loss, melena and anorexia⁸. The physical findings are wasting and pallor, mild jaundice in late stages, mass epigastrium, enlarged supracalvicular nodes (Virchow's node), ascites, metastatic pelvic and ovarian deposits, (Krukenberg's tumor)⁵.

The investigations include barium study, upper gastrointestinal endoscopy with multiple biopsies, brush cytology, blood examination and CT abdomen.

Department of Surgery, K. E. Medical University/Mayo Hospital, Lahore

Correspondence to Dr. Yar Muhammad, Senior Registrar.
Email: ymkhokhar@yahoo.com

Surgery is the only potentially curative treatment and depends upon the extension and localization of tumor. Treatment of early gastric cancer is gastrectomy with removal of D₁-lymph nodes, or recent alternatives such as laparo-endoluminal resection, photodynamic therapy⁶. To be curative, resection with 2.0 cm of unscratched margins for early and well-circumscribed tumors and 5.0 cm for infiltrative advanced lesions is adequate². Overall 5-year survival is now about 40% after potentially curative D₂ resection in Britain⁷. Fit patients with advanced or recurrent adenocarcinoma should be offered chemotherapy with 5FU, Cisplatin and Epirubicin⁸.

Prognosis of early gastric carcinoma is good while those with stage-IV have poor outcome.

MATERIAL AND METHOD

This study was conducted on 60 patients in the surgical department of Mayo Hospital, Lahore from March 2003 to March 2008. All the patients presented with pain epigastrium, vomiting, weight loss, epigastric mass etc., were admitted through OPD, emergency or were referred by the physician. They were diagnosed by the clinical assessment and the investigations. The investigations included blood examination, chest radiograph, abdominal ultrasound, upper GI endoscopy & biopsy, barium study, CT abdomen and test for H. Pylori. The patients with comorbid disease like acute MI,

advanced liver disease, renal diseases were excluded from this study. After confirming the diagnosis the disease was staged. All the patients with carcinoma were operated after preparation. Postoperatively they were managed in the ward accordingly. The patients with gastric lymphoma were referred to oncology.

RESULTS

In this study 60 patients were included. Forty two patients admitted through OPD, 14 patients referred by gastroenterologist and 4 patients through emergency department. Overall mean age was 52.36 years (27-78 yrs) SD±14.47. In this study 56.7% (34) were males and 43.3% (26) were females with male to female ratio of 1.3:1.

Most of the patients presented with more than two symptoms at the time of presentation. The clinical features included epigastric pain, abdominal distension, epigastric mass, vomiting, haemetemesis or malena. Vomiting was the most common presentation 50% (30) (Table 1).

CT scan showed wall thickening in 60% patients, gastric mass in 66.7%, enlarged para-aortic lymph nodes in 40%, invasion of adjacent viscera 10% and ascites in 33.3%. Liver function tests performed in all patients. They were normal in 73.3% while 26.6% patients had deranged liver functions.

Surgical procedures performed in these patients included Billroth-I + lymph dissection, (20%), Billroth-II + lymph node dissection (16.6%), gastrectomy along with reconstruction (6.7%), gastrojejunostomy (26.7%), feeding jejunostomy (13.3%) and omental biopsy (6.7%). These procedures were different depending upon the stage of disease and condition of the patients. The postoperative histopathology report showed adenocarcinoma in 88.8%, squamous cell carcinoma in 5% and lymphoma in 6.6%.

Various complications recorded in post operative period e.g. 27.3% patients had fever, 20% had wound infections, while 3.33% had re-do surgery due to intractable bilious vomiting and 3.33% died in hospital. No patient had anastomotic leak, peritonitis, or on table death.

Table 1: Symptoms and signs of the patients

Symptoms & signs	Frequency	%age
Vomiting	30	50
Weight loss	28	46.6
Epigastric pain	25	41.7
Epigastric mass	20	33.3
Malena	12	20
Jaundice	06	10
Haemetemesis	04	6.8
Ascites	02	3.3
Troisier's sign	01	1.6

Table 2: Operative Procedures of patients with gastric cancer (n = 60)

Operative Procedure	Frequency	%age
Billroth-I + D ₁ resection	12	20.0
Billroth-II + D ₁ resection	10	16.6
Total gastrectomy + Roux-en-Y anastomosis	4	6.7
Gastrojejunostomy	16	26.7
Omental biopsy	4	6.7
Feeding jejunostomy	8	13.3
Gastrojejunostomy + omental biopsy	6	10.0

Table 3: Staging

Staging	Frequency	%age
Stage I	0/60	0.00
Stage II	18/60	29.99
Stage III A	14/60	23.33
Stage IIIB	6/60	10
Stage IV	22/60	36.66

Table 4: Histopathological reports of patients with gastric malignancy (n=60)

Type	Frequency	%age
Adenocarcinoma	53	88.7
Squamous cell carcinoma	03	5
Lymphoma	4	6.4

DISCUSSION

In our study carcinoma is more common in males: with male to female ratio of 1.3:1 which is similar to study done by Bowels MJ¹¹. It is more common in old age. Most of the patients presented with vomiting, weight loss, anorexia and epigastric pain, which is similar to Muhammad G, Bowels MJ^{5,11}.

On barium study 43.3% patients had stomach wall thickening and 46.7% irregular mucosa, narrowing of pylorus seen in 46.7% patients which is similar to Bowels MJ and Dicken BJ who reported particular importance of barium studies in diagnosing 'Linitis plastica' and gastric outlet obstruction¹¹. Ahmad KK also showed diagnostic role of barium in secondary achlasia¹³.

CT scan was performed in all patients showed stomach mass, enlargement of perigastric and paraortic lymphnodes, invasion of adjacent viscera and free peritoneal fluid/ malignant ascites in various cases.

We found endoscopic biopsy be more accurate (93.3%) in diagnosing carcinoma stomach as compared to barium studies accuracy of which was only 51.1% which is similar to that of Noboru Shindoh et al in his study of 336 cases¹⁴.

In our study we were able to perform curative resection in the form of partial gastrectomy + D₁ in 43.3% patients which is comparable to Lee JH et al

whereas Di Martino however performed total gastrectomy and D₂-resection in his study^{15,16}.

We performed palliative surgery with or without feeding jejunostomy in 50% patients and 6.7% had diagnostic exploration only in advanced cases, results are similar to studies by Bowels MJ, Tersigni R, and Mauro MA, who also emphasized on use of endoscopic laser treatments, endoluminal stenting or placement of feeding jejunostomy as a palliation^{7,11,17}.

Our experience of these palliative methods is very limited other than feeding jejunostomy because of non-availability of equipment and cost. We operated all the patients with carcinoma stomach. In 6 months follow up no mortality recorded in stage II while in stage-IIIA mortality was 28.57% in IIIB its 100% and in stage IV who underwent only palliative surgery 81.8% was the mortality by the end of 6 months.

Worldwide literature gives mortality in terms of 5-years follow up. McDonald JS recorded 5-years mortality of 80-85% in stage-III when surgery alone was done while that of 15% in stage-IA and IB. In stage IV there is only 10 months median survival time with combination chemotherapy while "best supportive care" is associated with only 3-4 months median survival time¹⁹.

CONCLUSION

Surgery is the only treatment of gastric cancer. Most of our patients presented in advanced stages of the disease, mainly due to lack of health-education, non-specific early symptoms, poverty. There must be some screening programme.

Newer advances in gastric cancer diagnosis and treatment such as endoscopic ultrasound, dye spraying method, endoscopic mucosal resection, photodynamic therapy.

REFERENCES

1. Kamal F, Hamid S, Tahir TM, Haider S, Aziz F, Tahir Z, et al. Profile of malignant tumors of gastrointestinal tract at Jinnah Hospital, Lahore. *Ann K E Med Coll* 2001; 7: 235-7.
2. Cuschieri SA. Disorders of stomach and duodenum. In: Cuschieri SA, Steele RJC, Moossa AR, eds. *Essential surgical practice. Higher surgical training in general surgery. vol 1, 4th ed.* London: Arnold 2002: 262-317.
3. Crawford JM, Liu C. The gastrointestinal tract. In: Kumar V, Abbas AK, Fausto N. *Robbins and Cotran pathological basis of disease. 7th ed.* India. Elsevier 2005; 797-873.
4. Gunderson LL, Donohue JH, Burch PA. Stomach. In: Abeloff MD. *Clinical oncology 2nd ed.* New York, N.Y.: Churchill Livingstone 2000: 1545-79.
5. Muhammad G, Rafi Y, Ali AA, Chaudhry AM. Mode of presentation of malignant neoplasm of stomach. *Ann KE Med Coll* 2002; 8: 111-2.
6. Irving M. The abdomen. In: Browse NL, Black J, Burnard KJ, Thomas WEG, eds. *Browse's introduction to the symptoms and signs of surgical disease. 4th ed.* 2005: 386-434.
7. Tersigni R, Alersandroni L, Baiano G, Mencacci R, Miceli M, Sadighi A, et al. The surgical treatment of gastric carcinoma. Evolution in surgical technique and stadiation in a series of 194 patients. *Minerva Chir* 2004; 59: 479-87.
8. Johnston D, Kirk RM. Stomach and duodenum. In: Kirk RM. *General Surgical Operations. 4th ed.* London 2000: 225-86.
9. Macaulay VM, Coulter C. Cancer chemotherapy. In: Kirk RM, Ribbons WJ. *Editors. Clinical surgery in general. 4th ed.* London: Churchill Livingstone. 2004: 284-301.
10. Ranzato R, Fiamingo P, Veroux M, D'Amico DF. The radical treatment of gastric carcinoma. *Minvera Chir* 2004; 59: 471-7.
11. Bowels MJ, Benjamin IS. ABC of the upper gastrointestinal tract: Cancer of stomach and pancreas. *BMJ* 2001; 323: 1413-6.
12. Park YK, Kim J, Koh YS, Joo JK, Ryo SY, Kim YJ, et al. Early gastric carcinoma in young patients. *Int Surg* 2006; 91: 316-9.
13. Ahmad KK, Shaukat A, Ali M, Amin Y, Qadeer T, Ahmad S. Is secondary achlasia a reality? Primary versus secondary achlasia: Role of barium swallow. In *Ann King Edward Med Coll* 2003; 9: 308-9.
14. Shindoh N, Nakagawa T, Ozaki Y, Kyogoku S, Sumi Y, Katayama H. Overlooked gastric carcinoma: Pitfalls in upper gastrointestinal radiology. In *Radiology* 2000; 217: 409-14.
15. Lee JH, Paik YH, Lee JS, Song HJ, Ryu KW, Kin CG, et al. candidates for curative resection in advanced gastric cancer. Patients who had equivocal para-aortic lymph node metastasis on computed tomographic scan. In: *Ann Surg Oncol* 2006; 13: 1163-7.
16. Di Martino N, Izzo G, Cosenza A, Vicenzo L, Monaco L, Torelli F, et al. Total gastrectomy for gastric cancer: can the type of lymphadenectomy condition the long-term results? In *Suppl Tumorin* 2005; 4: S84-5.
17. Mauro MA, Koehler RE, Baron TH. Advances in gastrointestinal intervention: The treatment of gastroduodenal and colorectal Obstructions with metallic stents. *Radiology* 2000; 215: 659-69.
18. Hundahl SA, Phillips JL, Menck HR. The National Cancer data-base report on poor survival of U.S. gastric carcinoma patients treated with gastrectomy: 5th ed. American Joint Committee in Cancer staging, proximal disease, and "different disease" hypothesis. *Cancer* 2000; 88: 921-32.
19. MacDonald JS, Smalley SR, Benedetti J. Chemoradiotherapy after surgery compared with surgery alone for adenocarcinoma of the stomach or gastroesophageal junction. *New Eng J Med* 2001; 345: 725-30.