EARLY GASTRIC CANCER
A STUDY OF TEN CASES

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Abstract - This study is a retrospective study of 10 patients with early gastric cancer, (6 from Imam Khomeini hospital between 1985 to 1994 and 4 from private offices), from the standpoint of clinical and pathological views, treatment modalities and prognosis. In Imam Khomeini hospital early gastric cancer comprises near 1% (68/600) of all gastric cancers, which may be due to low reference, lack of screening procedures etc. Mean age of onset was 52 years and male: female ratio was 7:3. All patients had some type of gastrointestinal upset like heartburn, epigastric pain etc. Six tumors were located in antrum and 3 in fundus and one was not identified. Macroscopically 2 cases were type Ia, two cases type IIIa cases type IIIb and two were type III. 5 cases had only mucosal involvement and 5 had both mucosal and submucosal involvement. In 6 patients the tumor was undifferentiated, one moderately differentiated and 3 well differentiated. Intestinal metaplasia was found in 5 and gastritis in 9 of them. Only one patient had lesser curvature lymph node metastasis. Subtotal gastrectomy was performed for 8 and total gastrectomy for two patients. Except for one patient who died 24 hours after surgery due to MI, 8 others lived disease free for more than or near 5 years after treatment. It is concluded that early diagnosis of cancer through screening procedures results in a better outlook for these patients.


Key words: Gastric, cancer

INTRODUCTION

Early gastric carcinoma is defined by the Japanese authors as a carcinoma confined to the mucosa or to the mucosa and submucosa (not extending to the muscularis external), regardless of the status of the regional lymph nodes (1). The name is inaccurate, because the concept is not related to size or duration of the lesion but exclusively to depth of penetration. Other terms include: surface, superficial spreading and microinvasive cancer. They have been further subdivided into minute (<5mm) and small (6 - 10mm) depending on size (2). According to the Japanese endoscopic society (3) early gastric cancer is classified into 6 morphological type, which is depicted in (Fig. 1).

Fig 1. Classification of early gastric carcinoma. The shaded area represents malignant tissue and the hatched layer the muscularis propria.

Most cases of early carcinoma are said to be of intestinal type (1), but a diffuse form also exists which is composed almost purely of signet ring cells (4). Mostly they are located in the distal third of the stomach, but they also occur at the gastric cardia (5, 6).

On the average, lymph node metastasis are seen in about 5% of intramucosal tumors and in 10 - 20% of those invading the submucosa (7). The relative incidence of early gastric carcinoma is clearly related to the magnitude of diagnostic efforts of fiberoptic gastroscopy and double contrast barium - meal examination, which when combined with histologic cytologic evaluation, allows diagnosis of lesions measuring 5 mm or less in diameter (8).

Several other studies on early gastric cancer
about Helicobacter pylori infection, DNA ploidy and immunohistochemical studies (K67, PCNA) have been published (1) which are not discussed further.

The 5 year survival rate following resection is between 80 - 95% and remains remarkably high when nodal metastasis are present (7). The incidence of local recurrence is very low (9).

The natural evolution of cases not treated by gastrectomy is to progress to advanced carcinoma (10).

**MATERIALS AND METHODS**

The records of the laboratory of surgical pathology and surgical ward (Cancer Institute) covering the 10 years period from 1985 - 1994 were reviewed. A total of 560 gastric resections for gastric carcinoma were identified and the pathology reviewed. 6 cases were found to involve only the mucosa or submucosa. 4 other cases were gathered from personal office. Microscopic H and E slides of early gastric cancer were examined. Also the clinical features, endoscopic reports were gathered and follow up was obtained from the medical records of the patients, the patients' family or the patient's responsible physician. Complete 5 years follow up was obtained for 8 patients.

**RESULTS**

During the 10 year period from 1985 - 1994 a total of 560 gastric cancers were resected at Imam Khomeini hospital. 6 were considered to satisfy the criteria for early gastric cancer, and overall incidence of ≈ 1% was obtained.

The male to female ratio was 7/3. The mean age of occurrence was 52 years (30 - 69 yrs). Most patients were investigated because of upper gastrointestinal symptoms (dyspepsia, epigastric pain, indigestion, emesis). Weight loss and anemia was not a prominent feature in these patients (except one case who had pancytopenia due to myelofibrosis). Barium studies were performed in nearly 5 patients that suggested malignancy in 4 of them. Endoscopy was done in all 10 cases and biopsies taken during the procedure.

In three cases, the lesion was located in fundus and in 6 patients it was located in antrum. In one case the location was not identified. Two cases had type IIa (elevated); two had IIb (flat); four had IIc (depressed); and two had type III (ulcerated). So type IIc lesion comprised the most common type (40%). Five cases had only mucosal involvement and the other 5 had mucosal and submucosal involvement. Both patients with type III lesions had mucosal and submucosal involvement; but other types showed inconsistent extension. The lesions ranged from 0.5 to 5.5 cm in greatest diameter in 6 cases (in 4 cases the size was not discernible); with an average of 2.1 cm.

Well differentiated lesions (30%) had recognizable gland formation with enough nuclear atypia to distinguish them from nonmalignant, reactive gastric epithelium. (Fig. 2, 3). One case was moderately differentiated and 6 others (60%) were undifferentiated mostly signet ring type (50%). The association between types and degree of differentiation was inconsistent. Intestinal metaplasia was identified in 5 (50%) and gastritis in 9 (90%) cases. Associated lymph node metastasis was identified in only one case with type IIc, mucosal, signet ring type carcinoma which measured 5.5 cm in diameter.

All patients with early gastric cancer were subjected to either partial (80%) or total gastrectomy, depending on the location of malignancy in the stomach. Associated splenectomy was performed for two patients.

Except for one patient who died 24 hours after surgery due to MI, 8 other patients were followed up for 5 years or more. One patient who had myelofibrosis died 8 years after surgery, all others are alive and free of disease. All the above data are summarized in (Table 1).
Fig. 2. Early gastric cancer, mucosal involvement

Fig. 3. Early gastric cancer, mucosal involvement
Table 1. Clinical characteristics of ten cases of EGC

<table>
<thead>
<tr>
<th>No</th>
<th>Age</th>
<th>Sex</th>
<th>Site &amp; Size(cm)</th>
<th>Histological pattern</th>
<th>Depth of invasion</th>
<th>Microscopic pattern</th>
<th>Gastrointestinal metastasis</th>
<th>Lymph node metastasis</th>
<th>Treatment</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>65</td>
<td>Male</td>
<td>Fundus 1.5</td>
<td>Type III</td>
<td>WD</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>TG &amp; Sp</td>
<td>Died 24 hours after surgery due to MI</td>
</tr>
<tr>
<td>II</td>
<td>65</td>
<td>Male</td>
<td>Antrum 0.5</td>
<td>Type IIb</td>
<td>WD</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>SG</td>
<td>Alive and well 9 yrs</td>
</tr>
<tr>
<td>III</td>
<td>30</td>
<td>Male</td>
<td>Fundus 1.5</td>
<td>Type III</td>
<td>WD</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>SG</td>
<td>Alive and well 5 yrs</td>
</tr>
<tr>
<td>IV</td>
<td>69</td>
<td>Male</td>
<td>Not identified</td>
<td>Type IIb</td>
<td>WD</td>
<td>Not identified</td>
<td>+</td>
<td>-</td>
<td>30 yrs after SG for ulcer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not identified</td>
<td>+</td>
<td>-</td>
<td>Biopsy showed gastric Cancer</td>
<td>Alive and well 5 yrs</td>
</tr>
<tr>
<td>V</td>
<td>55</td>
<td>Male</td>
<td>Antrum</td>
<td>Type IIC</td>
<td>WD</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>SO &amp; Sp</td>
<td>Died 6 yrs later due to myeloradicu</td>
</tr>
<tr>
<td>VI</td>
<td>35</td>
<td>Male</td>
<td>Antrum</td>
<td>Type IIC</td>
<td>WD</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>SO</td>
<td>Alive and well 5 yrs</td>
</tr>
<tr>
<td>VII</td>
<td>65</td>
<td>Male</td>
<td>Antrum</td>
<td>Type IIC</td>
<td>WD</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>SG</td>
<td>Could not be traced</td>
</tr>
<tr>
<td>VIII</td>
<td>44</td>
<td>Male</td>
<td>Antrum</td>
<td>Type IIC</td>
<td>WD</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>SG</td>
<td>Alive and well 5 yrs</td>
</tr>
<tr>
<td>IX</td>
<td>45</td>
<td>Male</td>
<td>Antrum</td>
<td>Type IIb</td>
<td>WD</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>SG</td>
<td>Alive and well 6 yrs</td>
</tr>
<tr>
<td>X</td>
<td>50</td>
<td>Male</td>
<td>Fundus 1.5</td>
<td>Type IIC</td>
<td>WD</td>
<td>Not identified</td>
<td>+</td>
<td>-</td>
<td>SG</td>
<td>Alive and well 6 yrs</td>
</tr>
</tbody>
</table>

1 - Microscopic, 2 - Mic. - Microscopic, 3 - WD: Well differentiated

DISCUSSION

Reports from several countries describing experiences in the diagnosis of EGC prompted us to explore the relative incidence of this lesion in a large metropolitan hospital and study other clinicopathological features of it. The real incidence of EGC in our hospital during 1984 - 1985 was 1% of all gastrectomies which compared with Japanese reports (39% in 1969) is a negligible number. This fact may be due to late reference of patients, poor screening procedures and faulty diagnosis.

In ten early gastric cancer cases studied, the male percentage was 70% and the mean age of occurrence was 52 yrs. Most patients had some upper gastrointestinal complaint (dyspepsia, epigastric pain) but weight loss and anemia was not prominent in them. Barium studies were performed on half of the patients and endoscopy associated by biopsy on all of them.

Following gastric resection (either total or partial) pathological findings showed:
- 60% of lesions were located in antrum 30% in fundus and in one site was not identified.
- 40% had type IIC and others distributed equally between types IIIa, IIb and III.
- 50% had just mucosal and others had both mucosal and submucosal involvement.
- The mean size of lesions was 2.1 cm (0.5 - 5.5cm).
- 30% case were well differentiated, 10% moderately differentiated and 60%
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undifferentiated mostly signet ring type (50%), in contrast to reference 1.
- Intestinal metaplasia was identified in 50% and gastritis in 90% of patients.
- Lymph node metastasis was identified in only one patient.
- The five year survival of patients was excellent nearly 100%

With an attention to the high survival rate of early gastric cancer patients compared to 27%, 5 year survival in advanced gastric cancer (12), we suggest better patient screening and improving of diagnostic modalities in order to raise percentage of gastric cancer diagnosis in early stages.

REFERENCES


