ENDOSCOPIC ANALYSIS ON THE GROWTH OF EARLY GASTRIC CARCINOMA

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Summary

Earliest endoscopic appearance and its subsequent changes were studied in 41 cases of early gastric carcinoma where gastrocamera photographs were available for detailed analysis over the period from three months up to 10 years.

The earliest appearance of polypoid carcinoma was a small area of nodularity, and that of carcinoma with mucosal depression was patchy reddening. Both types of carcinoma were thought to occur initially as a lesion without mucosal elevation or depression (IIb). In carcinoma with shallow mucosal depression (IIc and IIc+-III), there were cases believed to have remained intramucosal for an extremely long period of several years, whereas, in polypoid carcinoma (IIa and I), the growth seemed to be more rapid.

In the cases with ulcer within the carcinomatous lesion, healing of the ulcer was confirmed in 37%, and "malignant cycles" were observed in 21%. Malignant transformation of gastric ulcer was suggested in one case with linear ulcer.

Key Words: early gastric carcinoma, earliest appearance of gastric carcinoma, growth of early gastric carcinoma, malignant cycle, endoscopy of early gastric carcinoma.

Introduction

Since the gastrocamera was made available for clinical use in 1955, gastrocamera photography provided us with the opportunity of reviewing the previous status of the gastric mucosa recorded on a permanently kept color photograph of an excellent quality; hence, retrospective follow-up study of gastric disorders was made possible.

Increasing number of gastrocamera examinations resulted in the accumulation of endoscopic follow-up cases of gastric cancer1-9). Each case is of immeasurable importance for the progress of diagnostics, on one hand, and for the elucidation of natural history of gastric...
carcinoma on the other. The purpose of this paper is to study 41 such cases by analysing the earliest endoscopic appearance of gastric carcinoma and its subsequent changes.

**Materials and Methods**

The subjects were 41 cases of early gastric carcinoma, which were followed up for 5 months or more preoperatively by the gastrocamera at the First Department of Medicine, University of Tokyo, during the period from 1960 to 1977.

**Table 1** shows the gross classification of the lesions at the time of gastrectomy and the length of follow-up period in the 41 cases of early gastric carcinoma. IIc or IIc+III type lesions were most frequent, and the follow-up period ranged from 3 months to 10 years and 5 months, with the average of 2 years and 6 months; the age at the time of laparotomy ranged from 26 to 73 years, the mean being 55 years. Male/female ratio was 35:6.

In those cases, the changes in the preoperative endoscopic findings were studied.

**Results**

1) Earliest Appearance of Gastric Carcinoma

The initial and final endoscopic appearances of 41 early gastric carcinoma cases are given in **Table 2**. The five cases marked with asterisks were considered to reveal the earliest appearance of gastric carcinoma and are summarised in **Table 3**: Small area of nodularity changed to type I early carcinoma of 8 mm in diameter in 1 year (Case 1). Subtle mucosal changes such as patchy reddening, discolouration and a focus of increased highlight grew to IIc or IIc+III type early carcinoma in 3 to 10 years (Cases 2 through 4). Abrupt obliteration of a rugal fold suggestive of IIc changed to IIa+IIc type early carcinoma in 10 years and 2 months (Case 5).

**Case 2 is presented:**

**Case:** S.O., male, 72 years old at the time of gastrectomy.

From 1964 (62 years of age) to 1973, he was examined once a year both by the gastrocamera and photofluorography at annual gastric mass surveys. **Fig. 1** is a gastrophotograph taken in 1964, revealing retrospectively a small patchy reddening on the lesser curve aspect of the antrum. **Fig. 2** was photographed in 1971, the patchy reddening becoming more prominent and enlarged with the appearance of irregularly shaped shallow depression and sloughing at the centre. **Fig. 3** was photographed in 1973, immediately prior to gastrectomy, showing an apparent IIc type early carcinoma at the same location. The total length of follow-up period was 10 years. **Fig. 4** shows the resected specimen bearing 20×30 mm sized IIc type lesion, histologically

**Table 1. Length of follow-up period and gross classification of materials**

<table>
<thead>
<tr>
<th>Gross classification</th>
<th>Early carcinoma</th>
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</thead>
<tbody>
<tr>
<td>Follow-up</td>
<td>protruding</td>
<td>IIa</td>
<td>IIa+IIc</td>
<td>IIc</td>
<td>IIc+III</td>
<td>III+IIc</td>
</tr>
<tr>
<td>3 mos - 1 yr</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>1 yr - 3 yrs</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>3 - 5</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5 - 10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>4</strong></td>
<td><strong>13</strong></td>
<td><strong>17</strong></td>
<td><strong>2</strong></td>
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41 Cases