---Original Article---

EVALUATION OF FIBERGASTROSCOPIC BIOPSY IN THE DIAGNOSIS OF GASTRIC CANCER:
A STUDY OF 339 CASES

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Summary

Three hundred and sixty-five biopsies under direct vision, using a fibergastroscope, were performed on 339 patients with gastric cancer from 1966 to 1975.

Diagnostic accuracy improved with an increased in the number of biopsy specimens and reached 100% when 6 or more biopsy specimens were obtained.

Positive specimens were obtained with 48.5% of the biopsied tissue from the center of the lesion (A), 52.2% from the inner margin of the lesion (B1), 19.6% from the outer margin of the lesion (B2), and 1.6% from the area around the lesion (C). The combined result of the biopsies from A and B1 was highly positive in 49 out of 51 cases (96.1%).

Diagnostic accuracy of the early cancer reached 96.9%. This was significantly higher than that of advanced cancer (80.3%).

False negative biopsies were found in 51 (16.3%) of the 313 patients who were gastrectomized and diagnosed by histological examinations.

Twenty-three of the 27 patients, who were diagnosed as benign either by x-ray or endoscopic examination, and 4 of the 5 patients who were diagnosed as benign under both examinations, were found to have positive results by biopsy. Positive biopsy examination was particularly helpful with patients showing on inconclusive or benign diagnosis by x-ray and/or endoscopic examinations.

Key Words: endoscopic biopsy, early gastric cancer, fibergastroscope.

Introduction

Since the introduction of the new fibergastroscope\(^1\), endoscopic biopsy under direct vision has been widely used for the diagnosis of a gastric lesion. A high success rate of diagnosis for gastric cancer by means of biopsy examination has been reported\(^2\)\(^-\)\(^5\), and the usefulness of biopsy in detecting early cancer smaller than 1 cm. in diameter has been emphasized\(^6\)\(^-\)\(^8\).

However, endoscopic biopsy does not always result in correct diagnosis of a gastric lesion,
because biopsy forceps do not always find the cancerous tissue in the lesion. There are many factors that influence the accuracy of endoscopic biopsy, and the diagnostic failures depend on various factors; failure of observation, unsuitable site of biopsy, insufficient size of biopsy specimens, insufficient number of biopsy specimens, lack of a proper section from biopsy specimens, and false negative on histological examination.

The aim of this study is to clarify the factors of technical failure in diagnostic biopsy and to re-evaluate endoscopic biopsy in the diagnosis of gastric cancer.

**Subjects and Methods**

One thousand, one hundred and sixty-five biopsies were performed on 1,075 patients with malignant or benign gastric lesion by fibergastroscope, under direct vision in our surgical department for ten years from 1966 to 1975 (Table 1).

Three hundred and sixty-five procedures were conducted on 339 patients with gastric cancer. All these patients were operated on and their gastric lesions were defined by a histological examination after gastrectomy or laparotomy. Three hundred and thirteen of the 339 patients underwent gastrectomies and these resected stomachs were studied by both gross and histological examinations. All 339 patients examined by both x-ray and/or endoscopic examinations and diagnosed preoperatively.

The distribution of the lesions of 339 gastric cancers is shown in Fig. 1. About one half of the lesions are located on the lesser curvature of the stomach, while two-thirds of the lesions are located in the area of the lower stomach. Of the 339 lesions identified by examining the resected stomachs, the x-ray and/or endoscopic examination, 64 lesions were early cancers and 275 advanced cancers (Fig. 2). Of the 64 early cancers, 6 were protruded, one flat, and 57 of the depressed type. On the other hand, of the 275 advanced cancers, 255 (92.3%) were of the depressed type.

The instruments used for the endoscopic biopsy and the number of cases examined by each fibergastroscope are shown in Table 2. For the first two years, endoscopic biopsies were performed using the modified Hirschowitz's fibergastroscope. Since 1968, various types of fiberscopes such as Olympus GF-B, EF, JF, GIF-D and GIF-D2 have been used.

Multiple biopsy specimens were taken under direct vision from various sites in and around

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**Table 1.** Fibergastroscopic biopsy under direct vision (1966–1975)

<table>
<thead>
<tr>
<th>Disease</th>
<th>No. of Biopsies</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>365</td>
<td>339</td>
</tr>
<tr>
<td>Peptic ulcer</td>
<td>299</td>
<td>263</td>
</tr>
<tr>
<td>Benign polyp</td>
<td>91</td>
<td>69</td>
</tr>
<tr>
<td>Other gastric disorders</td>
<td>410</td>
<td>404</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,165</strong></td>
<td><strong>1,075</strong></td>
</tr>
</tbody>
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**Table 2.** Location of lesion (339 cases)