Panel 1

Pathogenesis and Epidemiology of Cancer of the Stomach

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Histogenetical Study of Gastric Carcinomas in the Japanese. Analysis of 150 Cases Treated in Relatively Early Stages

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Introduction

From the viewpoint of early diagnosis, as well as of prophylaxis, the problem of precursors in human gastric carcinomas is a matter of paramount importance. The remarkable progress in gastric diagnostics during the last 10 years has enabled us to examine a number of gastric carcinomas in relatively early stages. In such early preparations the problem of precursors can be discussed much more easily and accurately. The present report is on a histogenetical investigation of one hundred and fifty gastric carcinomas in which cancerous invasion was restricted either to the mucous membrane or to the muco-submucous layer.
Material and Methods

Since the establishment of National Cancer Center Hospital in May 1961 till April 1966, 1,050 gastrectomies were performed for carcinoma of the stomach. All the material underwent precise histological examination. Of these 1,050, in 150 there was no invasion into the muscular coat and the cancerous focus was restricted to the mucosa or the muco-submucous layer. These 150 cases were used for the histogenetical investigation. Clinical data, X-ray and gastro-camera findings of representative cases are shown in the monograph recently published by one of us (Kuru, 1966b). After fixation, the part of the stomach including the whole lesion was divided into 5-20 longitudinal strips from the cardiac to the pyloric stump along or parallel to the lesser curvature. Not only the cancerous focus, but also the surrounding mucous membrane were examined in detail, paying special attention to co-existing ulcerative lesion(s). Beside the haematoxylin-eosin stain, Van Gieson, Mallory and PAS stains were routinely used. Silver impregnation technic was employed to trace the attitude of basal membrane in necessary cases.

Results

From their gross appearance these 150 gastric carcinomas in relatively early stages can be classified into five groups:

1. polypous or polypoid cancer,
2. ulcer-cancer,
3. superficial spreading cancer with ulcer,
4. in situ carcinoma of the mucosa, and
5. submucous carcinoma.

The first group differs from the other four in that the cancer has a polypous or polypoid appearance. In this group, the cancerous focus protrudes from the surroundings and its boundary is quite distinct. In 7 cases it was markedly pedunculate, while in 9 it was more sessile and in 6 more flattened (Fig. 1). In all these 22 cases the existence of adenomatous tissue beneath or in the cancerous focus could be easily demonstrated, so that a cancerous transformation of an adenoma was reasonably postulated. An example of the pedunculate form is demonstrated in Fig. 2 and that of a more sessile form is shown in Fig. 3. In the lower half of these figures both carcinomatous and adenomatous foci are shown in high magnification. However in 13 other cases of this group, adenomatous tissue could no longer be recognized despite the polypoid appearance (Fig. 4). These polypoid cancers can be interpreted as being a later stage of the polypous cancers demonstrated above or of the in situ carcinomas to be discussed below. Histologically papillo-tubular structure was common and in the surrounding mucosa marked atrophic or atrophic-hyperplastic gastritis with intestinal metaplasia was observed (Fig. 5). Correspondingly gastric anacidity prevailed in the majority of cases (Fig. 6).