DOUBLE PRIMARY CARCINOMAS OF THE OESOPHAGUS

A CASE REPORT AND A DISCUSSION OF ITS SIGNIFICANCE

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Multiple carcinomas in any organ are rare. Marshak[1] has drawn attention to the fact that multiple carcinomas do occur in the large bowel and should be sought for on barium-enema examination. However, only a few cases of double carcinoma of the oesophagus have been reported. Kingsley Brown[2] reported two independent primary oesophageal carcinomas in March 1959, and he could find no similar previous case in the literature.

Sun Shao-Ch'ien and Wu Hsia[3] reviewed 100 specimens of squamous-cell carcinoma of the oesophagus, one of the malignant tumours most frequently seen in China. They believe that at least a few cases of squamous-cell carcinoma of the oesophagus are multicentric in origin.

Sheinfeld and Rudolph[4] state that it is wise, in dealing with a neoplasm of the gastro-intestinal tract, to exclude multiplicity, since this has an appreciable although small occurrence.

Li Kuang-Heng, Kao Jun-Ch'uan and Wu Ying-K'ai[5] state that 'Carcinoma of the oesophagus is one of the common cancers in North China. According to the vital statistics for Peking and Tientsin for the years 1958 - 60, death due to carcinoma of the oesophagus was second among all cancer deaths. It was first in order of frequency for all deaths due to malignancy in males.' The population covered by the survey was over 17 million.

Cohen,[6] of the Radiation Therapy Department of the Johannesburg Hospital, has compiled a table of the incidence of cancer in Africans treated in the Radiation Therapy Department of the Johannesburg Hospital, during 1949 - 1963. 4,566 cases from the Southern Transvaal region were seen. Carcinoma of the oesophagus comprised 18% of all carcinomas seen in the male and was the commonest tumour found in the male. The incidence has increased greatly in recent years in Africans.

This is confirmed by Oettlé[7] who states that since 1953, in the Johannesburg area, oesophageal cancer has increased by 400% and now far exceeds liver cancer in frequency.

AETIOLOGY

This is still not known for certain. Keen *et al.*[8] state that the high incidence of carcinoma of the oesophagus is found in rural and urban Bantu as well as in other African and Asian communities. Aetiological factors to be considered are genetic susceptibility, endocrine factors, nutritional defects and infections associated with poor oral hygiene. Extrinsic carcinogens and irritants may also be causes and alcohol, tobacco and betel-nut chewing have been incriminated.

Oettlé[7] states that the retrospective studies on oesophageal cancer patients in the 1953 - 55 Johannesburg survey showed a strong correlation with smoking, especially cigarettes.

In England and Wales susceptibility falls into 3 main groups:

1. Those exposed to excessive alcohol intake, e.g. barmen, etc.
2. Those exposed to excessive lead intake, e.g. plumbers, etc.
3. Brass and bronze workers.

Oettlé[7] thinks that the association with alcohol does not completely explain susceptibility to this cancer. He feels that some contaminant of alcohol is responsible, e.g. a trace element such as lead.

Li Kuang-Heng *et al.*[5] found that in North China 'the habit of alcoholic drinking was not an important factor'.

Stocks[9] feels that differences in intensity of natural ionizing radiation from various kinds of bedrock might provide the key.

Jacobsson[10] thinks that it is probable that the high incidence of carcinoma of the cervical oesophagus in females in Sweden, could be related in part to the higher frequency of the Patterson-Kelly (Plummer-Vinson) syndrome.

Smithers[11] and Gowing[12] discuss the relationship of carcinoma of the oesophagus with miscellaneous lesions, e.g. hiatus hernia, etc.

Shanta and Krishnamurthi[14] think that the causal factors in upper alimentary tract carcinogenesis are extrinsic.

Burrell[15] feels that those who eventually develop tumours could have been exposed to an untold number of carcinogens for a long time. Because of their low potency it takes many such minor assaults before a critical point is reached which triggers off malignancy.

In summary, it appears that there are many different factors in different parts of the world, but an ingested environmental carcinogen may be the probable cause. Thus, multicentric carcinomas may occur.

CASE HISTORY

A Bantu male, aged 35 years, complained of painful dysphagia for 6 weeks. For one week before admission the dysphagia was very severe, and he could swallow only fluids with great difficulty.

Radiological Findings

A barium examination done by one of us (I.B.) showed a stricture of approximately 4 inches long, involving the distal end of the oesophagus and extending into the fundus of the stomach (Fig. 1). The stricture was rigid, eccentric and irregular, and some half shadows especially at the proximal end were noted. The oesophageal wall appeared thickened at the site of the stricture. There was dilatation of the oesophagus proximal to the stricture.

A second lesion was noted opposite the aortic arch. This was seen to be an irregular eccentric filling defect, approximately 1½ inches long on the left side of the oesophagus (Fig. 2).

An oesophagoscopy confirmed the double lesion. Shortly afterwards the patient died, apparently from acute cardiac failure.

Pathological Report

An autopsy was performed by Dr. S. Shippel, senior lecturer in the Department of Pathology of the University of the Witwatersrand. His report confirmed the double carcinoma. One was a large fungating carcinoma almost completely occluding the cardiac end of the oesophagus. Another apparently separate carcinomatous ulcer crater was present in the mid-portion

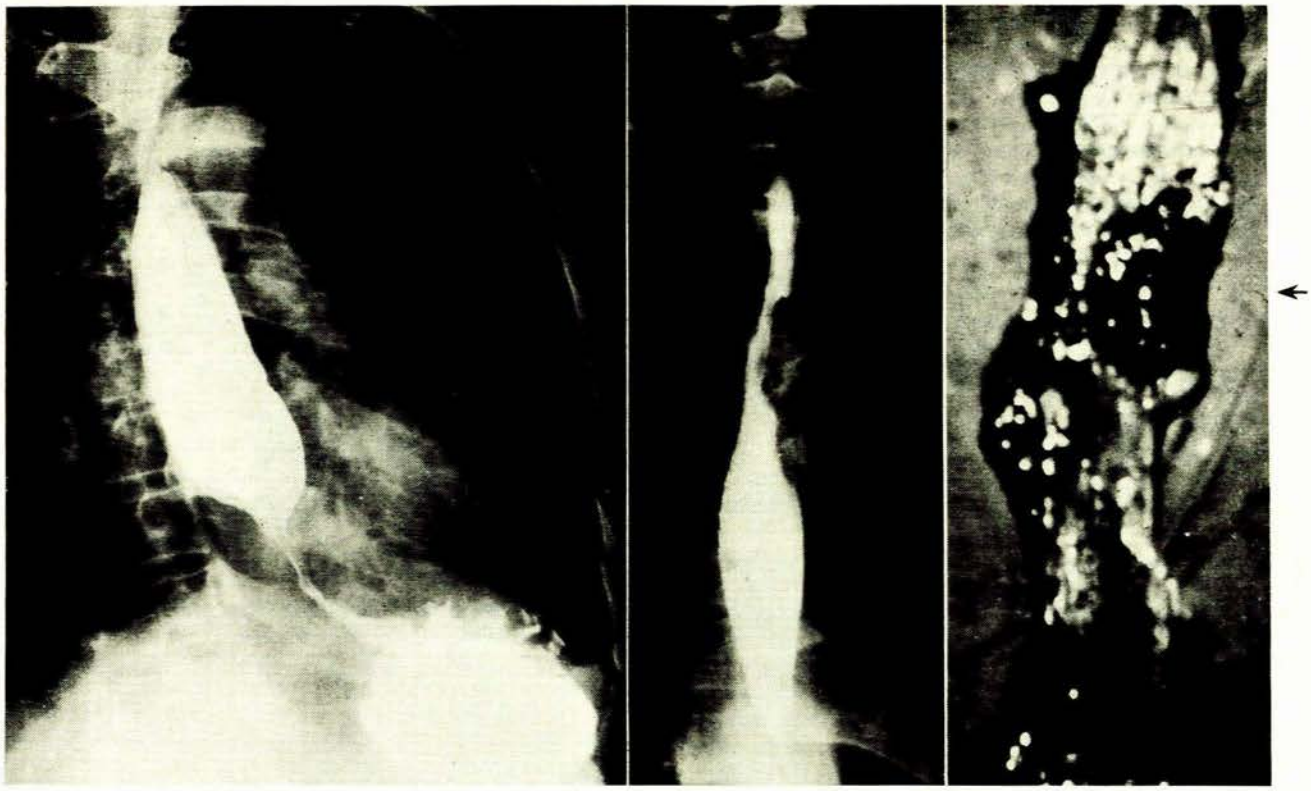

Fig. 1 *Fig. 2* *Fig. 3*

Fig. 1. Showing the rat-tail stricture at the distal end of the oesophagus and filling defects in the fundus of the stomach. The upper lesion is not well seen. *Fig. 2.* The filling defect opposite the aortic arch is well seen. *Fig. 3.* The malignant ulcer involving the left wall of the mid-oesophagus is arrowed. The proximal part of the lower lesion is just visible.

of the oesophagus (Fig. 3). The cause of death appeared to be acute cardiac failure.

Histology

The whole oesophagus was rolled up according to the technique described by Stein[16] and then sectioned. By means of this technique continuous sections of the whole length of the oesophagus were obtained. Both lesions showed the presence of squamous-cell carcinomas, the one at the cardiac end being more anaplastic in nature than the lesion in the middle of the oesophagus (Fig. 4). No lymphatic or sub-mucous permeation between the two lesions was observed, suggesting thereby that these were two primary squamous-cell carcinomas of the oesophagus.

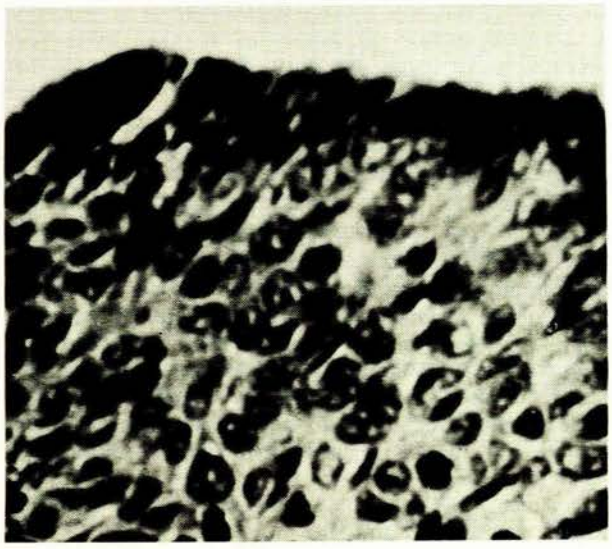

Fig. 4. High-power detail (X 630) of the tumour occurring in the middle of the oesophagus showing the presence of a fairly well differentiated squamous-cell carcinoma.

DISCUSSION

Carcinoma of the oesophagus is, for practical purposes, incurable. Nakayama[13] reviewing 2,382 cases of carcinoma of the oesophagus seen in his surgical department during 1946 - 1957, found a 5-year survival of 35 cases, i.e. approximately 1·5%. One of the reasons for this low survival rate is that the main complaint is usually dysphagia, which occurs late in the disease, usually when the gullet is two-thirds or more obstructed. Thus the lesion is usually well advanced before symptoms become manifest.

The case described, where two separate squamous-cell carcinomas were found with no intervening spread, suggests that a multicentric origin of carcinoma of the oesophagus does occur. The inability to demonstrate carcinomas in two or more sites radiologically does not necessarily mean that this is not so histologically. This would imply that radical therapy to the oesophagus as a whole is indicated, whether by surgery, e.g. oesophagectomy or oesophago-gastrectomy, or by radiation therapy. Oettlé[7] states: 'In many cases sections taken from sites remote from the carcinoma, have shown areas of carcinoma *in situ*—evi-

dence of the intensity of the carcinogenic stimulus to the whole oesophagus. The significance of this factor in treatment will be evident—local resection of a tumour often proves inadequate.'

Keen[17] states that in the African the oesophagus is sensitized by local carcinogens, and often with multiple foci of malignancy. He states further: 'The one obvious fact is that any therapeutic approach must deal with the whole oesophagus. Segmental resections are doomed to failure. . . . Radiation therapy, if it is to be of any real help, must deal with the whole oesophagus.' In view of the above findings it is suggested that when a suspected carcinoma of the oesophagus be found, the radiologist should make a careful survey of the oesophagus, since another lesion could conceivably be missed. Multiple oesophageal carcinomas should be especially sought for in the Bantu male.

SUMMARY

1. A review of multip'e carcinomas of the oesophagus is given.

2. The high incidence of carcinoma of the oesophagus in the Bantu male is noted.

3. A case of a double carcinoma of the oesophagus in a Bantu male is described.

4. The multicentric origin is discussed.

5. The surgical and radiation therapeutic approach should be directed to the whole oesophagus.

6. A careful radiological search should be made for additional oesophageal lesions when a suspected carcinoma of the oesophagus is discovered.

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