

The diagnosis of the Esophageal Cancer Using Radioactive Phosphorus

M. ENDO

Institute of Gastroenterology, Tokyo Women's Medical College, Tokyo

The diagnosis of the esophageal cancer using radioactive phosphorus has been carried out in ordinary examination. The recent detector is a semi-conductor one. The detectors are 3 mm and 2.5mm in size. The later one is possible to be used with the conventional esophagofiberscope. In measuring of ^{32}P up-take in the esophageal lesion, both the pull-out method and the method under direct vision have been performed usually. The examination has been applied to 245 cases. 191 cases were esophageal cancer and some cases of other esophageal diseases were also performed to make the differential diagnosis. The method under direct vision was carried out in 180 cases

(73%) and the false negative cases were seen in 2.2%.

The pull-out method was performed in 65 cases and the false negative cases in 11%. But the false positive cases were not seen in both methods. Five of the cases of the esophageal cancer were the early esophageal cancer. The uptake ratio in one case was on the boaderline and those of other cases were in the malignant ratio. The method under direct vision has some superiorities comparing to the pull-out method because of the exactness, the possibility to find small lesions and the decrease of false negative cases.

Clinical Evaluation of Scanning of the Liver for the Patients with Advanced Carcinoma of the Stomach

K. WATANABE, M. INAKURA, K. KAWAHIRA, C. NAKAYAMA and H. TERASHIMA

Today, many cases of carcinoma of the stomach are treated surgically in the early stage by the improvement of diagnostic technique.

However, it is also not infrequent to see the patients with advanced carcinoma of the stomach in which has often metastasis to the liver in clinic. One of the indispensable things for stomach surgery is to know whether these patients have hepatic metastases or not.

One of the approaches to this problem is to employ scanning of the liver. The present study was undertaken in order to correlate both of scintigram and macroscopic findings of the liver in the patients of carcinoma of the stomach.

Materials:

Scanning of the liver of 1,397 cases was performed from January 1968 to June 1971 in our

department. 206 of these cases were received scanning of the liver as the preoperative examination of carcinoma of the stomach. Materials of this study were 150 cases except 56 cases followed up unsuccessfully. Metastases of the liver were confirmed by autopsy in 7 cases and by surgery in 128 cases. Other 15 cases were inoperable, but their hepatic metastases were obvious from the clinical findings and were included in this study.

Scanning method:

Fifteen minutes after intravenous injection of $250+50\mu\text{Ci}$ of ^{198}Au colloid or $2+1\text{mCi}$ of $^{99\text{m}}\text{Tc}$ -colloid the scan was begun, using two kinds of rectilinear scanner (Shimadzu SCC-150, SCC-20).

Frontal view and right lateral view were routinely obtained.

Results:

1. Scanning of the liver detected intrahepatic space occupying lesion in 37 of 44 patients with hepatic metastasis (True positive 84%). Normal findings on the scan were obtained in 99 cases of 106 patients without hepatic metastasis (True negative 93%).

2. Of 7 cases in which scanning failed to detect the hepatic metastasis, 3 had only small metastatic tumors less than one cm in diameter. In other 4 cases, errors of interpretation were pointed out retrospectively.

3. Of 7 false positive cases, 2 were mis-

diagnosed as hepatic metastasis for low activity area due to gall bladder or kidney. In other 5 cases, suspicious of hepatic metastasis were still remained, because the perfect verification of the hepatic metastasis is impossible even at surgery.

4. Conclusively, we would like to say that scanning of the liver is very reliable in most of cases, though small metastatic tumors less than 1-3 cm in diameter are undetectable, and it was impressive that many hepatic metastasis had the size enough to detect by this technique.

A Clinical Value of the Liver Scintigram in Hepatic Surgery

M. MITO and Y. KASAI

First Department of Surgery

S. SHIBATA

Department of Radiology, Hokkaido University Hospital, Sapporo

The appearances of liver scintigram were assessed on comparison with those confirmed by surgical laparotomy or autopsy with regard to the diagnostic value of scan. A recent conception of the authors was presented about an accuracy of the diagnosis objectively made to analyse the scan interpretation in a semiquantitative manner for liver diseases.

Method and Material:

1. The tumor models from 1 to 5cm, in a diameter were replaced on various depths in phantom including radioactive solution with count rate from 160 to 180cps, and the scan was performed.

2. Liver scan was done with a Shimazu SSS 130W scanner having twin opposite detectors consisted of a 3-in. crystal in the patients with space occupying lesion; 32 with primary carcinoma, 69 with metastatic carcinoma, and 25 with benign tumor.

Result:

1. ^{99m}Tc sulfur colloid was so available to delineate even the tumor model of 1cm in a diameter on the surface of phantom, but was impossible to detect the tumor model of less

5cm in a diameter on the depth of 5cm. ^{198}Au colloid was not able to detect the tumor model of less 2cm in a diameter on the surface, but was possible to detect the tumor model more 3cm in a diameter on the depth of 5cm.

2. Data blended scan using Gaussian filter was done in 100 cases with space occupying lesion, and compared with dot and conventional photoscans. An ability to detect a lesion of 3cm in a diameter was indicated as 100% in data blended scan, 71% in conventional photoscan, and 32% in dot scan. But the number of false positive and negative was 20%, and it was difficult to distinguish pseudotumor in the presence of diffuse liver diseases from true neoplasms.

3. Analysis with liver area and liver volume estimated from anterior and right lateral views of the scintigrams was helpful to make a diagnosis of the liver diseases. The differential diagnosis between intra- and extrahepatic lesion could be readily established by the analysis. Liver areas on the pre- and postoperative scintigrams were estimated in 8 cases with hepatectomy. The increase in liver area was shown a month after the hepatectomy in