

Tumor Scanning with ^{57}Co -Bleomycin

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The clinical application of ^{57}Co -Bleomycin was reported originally by Nouel and Maeda, independently. We studied the clinical value of this tumor scanning agent for 38 cases with malignant tumors, benign tumor and inflammatory diseases. Six and 24 hours after the injection of 400–500 μCi of ^{57}Co -Bleomycin, tumor area was scanned with a 3-inch scintiscanner. Fifteen minutes, 3, 6 and 24 hours after the injection, linear scans were performed.

Positive scans were obtained in 15 of 18 patients with lung cancer and 3 of 6 patients with breast cancer. But no positive scan was obtained in another 10 malignant tumors (thyroid cancer 3, hepatoma 3, gastric cancer 1, pulmonary reticulosarcoma 1, peritonitis carcinomatosa 1 and metastatic hepatic cancer 1). In a case of pulmonary tuberculosis, a positive scan was obtained, but in two other inflammatory diseases and myoma of neck, scans were negative.

Relationship between scintigram findings and the size of tumor mass excised surgically, were studied in 8 cases of lung cancer and in 6 cases of breast cancer. The smallest tumor detectable on scan was 2.0 cm in lung cancer and 3.2 cm in breast cancer. In two cases of lung cancer the radioactivity of the excised tumor and surrounding lung tissue was compared with a well type scintillation counter. They were epidermoid carcinoma and adenocarcinoma, the ratio tumor over lung was 3.95 and 1.92 respectively.

On the linear scan, obtained 15 minutes after injection, three radioactive peaks derived from cardiovascular pool, kidney and urinary bladder were observed. After 24 hours, only two peaks from kidney and urinary bladder were clearly observed. Even in the case of lung carcinoma that showed a strong positive scintigram, the peak of tumor was recognized only after 24 hours.