

Scintigraphy of Lung Cancer Using $^{203}\text{Mercury}$ Pretreated with Glutathione

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Recently the scintillation scanning of chest using radioactive mercuric chloride has been proved to be useful as a screening method for the detection of lung cancer. Now one of the difficulties for wide application of this method is the poor resolution of scintigraphy. The blur of the scintigram is partially due to the high blood level of radioactivity. The lung involves blood vessels so abundantly besides the proper ventilatory tissues, that the radioactivity bound to blood cells and remaining long after the administration is very troublesome for the detection of the radioactivity accumulated in the lesion.

Here we report that mercuric chloride, when mixed with some times the equivalent of glutathione just before the intravenous injection, does scarcely bind with blood cells, and taken up rapidly and preferentially into malignant tissue as the free mercuric chloride or radiomercury Neohydrin. For the routine examination one millicurie of $^{302}\text{HgCl}_2$ is quite enough, and by this method the accuracy of scintigram of lung cancer has been improved.

81 cases suspected malignant lung tumor were examined by this method. The majority

cases of lung cancer (82%) showed hot spots in scintigram, on the other hand the tuberculous cases have the hot spots of 21%.

The mean value of accumulation ratio of radiomercury in malignant lesion is 6.04 ± 4.93 , and the mean ratio in tuberculous cases is 2.49 ± 2.56 .

The autoradiography of the resected lung which was administered the $^{203}\text{mercury}$ with glutathione a day before the operation has revealed that the fixation of the radioactivity was considerable in the malignant tissue of lung.

Conclusion

1) The scintigram with radioactive mercury chloride gives a hyper accumulation of malignant lesion of the lungs.

2) If it is possible to found the lesion which is smaller than the recognized size of the lesions by this method, it is very useful for diagnosis and therapy of lung cancer. Because there are 2 reasons, one of them is pointed out malignant disease without contained non malignant disease with this method, the other of them is expected some good prognosis of therapy of lung cancer.

Scintigraphic Diagnosis of Malignant Lymphoma Using ^{75}Se Selenomethionine

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^{75}Se selenomethionine is incorporated into protein synthesis in tissues such as the thyroid, the liver, the pancreas, and the bone marrow after intravenous administration.

In 1965, Herrera et al reported primarily

that this agent was available for the diagnosis of malignant lymphoma. Administration of the tracer dose of ^{75}Se selenomethionine permitted their demonstration by means of scintigraphic techniques.