

## Clinical Evaluation of $^{67}\text{Ga}$ -Citrate Scintigraphy in Pulmonary Diseases

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Clinical value of scintigraphy with  $^{67}\text{Ga}$ -citrate was investigated on a group of patients with pulmonary diseases.

Fourteen cases with lung cancer, 5 cases with pulmonary tuberculosis, 2 cases with acute pulmonary inflammation and 5 cases with sarcoidosis have been examined by scintigraphy. A Pho/Gamma III scintillation camera, 1600 channel analyzer connected to it and computer compatible magnetic tape were used. The scintigraphy was performed 3 or 4 days after the intravenous administration of 1.5 to 2.5 mCi of  $^{67}\text{Ga}$ -citrate. Following the  $^{67}\text{Ga}$  study,  $^{131}\text{I}$ -Macroaggregated albumin (MAA) was administered intravenously and the scintiphoto was obtained in the same position in all cases.

Data stored in the magnetic tapes were processed by digital computer (FACOM 230-60). Tumor to non-tumor ratios of  $^{67}\text{Ga}$  were obtained by using non-involved symmetrical parts of the tumor.

Positive scintiphotos of the tumor with  $^{67}\text{Ga}$ -citrate were obtained in all cases with lung

cancer, in 4 of 5 cases with pulmonary tuberculosis, in all cases with acute pulmonary inflammations and sarcoidosis. Although there were some overlap, tumor to non-tumor ratio was highest in the undifferentiated cell carcinoma, nextly higher in the cases with squamous cell carcinoma, and lower in cases with adenocarcinoma. The ratio in cases with acute inflammation was very high and that in cases with pulmonary tuberculosis was the lowest. These results suggest that  $^{67}\text{Ga}$  scintigraphy could be helpful to predict the type of tumor. However, there are many factors which influence the gallium uptake and our total numbers are too small to represent anything more than an interesting observation which may act as a clue to the mechanism of gallium uptake. Although computer scintigraphy made the interpretation of the lesions easy and was useful to get tumor to non-tumor ratio, simple scintiphotography was enough useful to detect the lesions, because of low background in the lung field.

## Pulmonary Scintigram in Pneumoconiosis Utilizing $^{67}\text{Ga}$ -Citrate

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In cases of pneumoconiosis the lungs were scanned utilizing  $^{67}\text{Ga}$ -citrate in an attempt to elucidate correlation between areas of  $^{67}\text{Ga}$ -

citrate taken up by the lesion and various forms or stages of pneumoconiosis.

The lungs were scanned at intervals of 24