jnm/LETTERS TO THE EDITOR

GAMMA CAMERA COLLIMATION

In our paper "Gamma camera collimator considerations for imaging ^{123}I" we discussed the fact that although the predominant gamma-ray energy is 159 keV, there are much higher energies present, which although of low abundance, can lead to image degradation because of septum penetration (*1*). The problem is accentuated in presently commercially available ^{123}I because of the high-energy gammas from other isotopic impurities present, such as ^{130}I. Iodine-123 obtained from Medi-Physics, Inc. could be satisfactorily imaged with the pinhole collimator and to a lesser degree with a collimator (4,000 hole) having septa 0.030 in. thick, but serious septal penetration was found with technetium collimators. The pinhole collimator limits imaging to small organs such as the thyroid.

We obtained a sample of "pure" ^{123}I from Brookhaven National Laboratory (BLIP), supplied to us by H. L. Atkins, E. Lebowitz, and P. Richards. The ^{123}I is produced by a (p,5n) reaction on ^{127}I, and the only other isotopic impurity present is said to be ^{125}I at less than 0.1%. The collimator septum penetration measured with the BLIP ^{123}I is a factor of 3 lower than obtained with Medi-Physics ^{123}I, as we had expected. Thus, the septum penetration on a low-energy technetium collimator with 0.010-in. septa has been reduced to the level of about 3%. Although this is still higher than given by a ^{99m}Tc source, it would allow the use of technetium parallel-hole collimators for imaging ^{123}I with satisfactory results. Therefore, the imaging of large organs with the resolution and efficiency of a thin septa collimator designed for technetium would be possible using "pure" ^{123}I. Although the full width half maximum resolution will be comparable to that obtained with ^{99m}Tc, the system MTF using ^{123}I will be slightly degraded because of the higher septal penetration.

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REFERENCE

1. McKeighten RE, Muehllehner G, Moyer RA: Gamma camera collimator considerations for imaging ^{123}I. *J Nucl Med* 15: 328–331, 1974

ANATOMIC LANDMARKS ON SCINTIPHOTOS

Anatomic landmarks on scintigrams are not only desirable but are often essential for scan interpretations. It is difficult to put such landmarks on images obtained from a scintillation camera (scintiphotos). A flexible tube source, although found suitable for cisternograms (*1*), was found to produce a dense image, masking part of the liver in liver scintiphotos. An electronic marking device as described by Walton and Sharpe (*2*) needs an involved electronic coordinate transfer system. A lead strip to produce an impression on the scintigrams works only with low-energy radionuclides with gamma rays and often blurs the data in the regions of interest. We have devised a method of putting landmarks on the scintiphotos with the help of a digital computer system (Med II, Nuclear Data) linked with a scintillation camera (Picker Dyna Camera).

The Med II system has its own builtin software and communication with the computer is made through a conversational language called two-letter

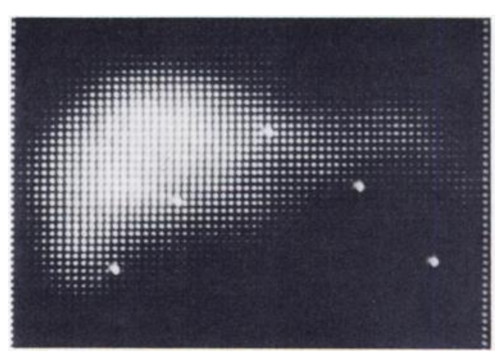

FIG. 1. Normal liver image obtained on computer scope with costal margin marking made with hot sources.