

K. Thyroid

Improvement of the Thyroid Images with a Pin-Hole Collimator of a Small Diameter

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The magnification of images by means of a pin-hole collimator can result in improved resolution through the relative enhancement of the intrinsic resolution of a scintillation camera. The study purposed the improvement of thyroid images by using the pin-hole of a variety of diameters with a Toshiba scintillation camera having a 15-1/4 in.-diameter NaI crystal. The pin-holes were made of lead with diameters ranging from 5.0mm to 1.5mm.

The phantom experiments using parallel-line

sources with Tc-99m demonstrated the evident separation of images of 2mm-separated line sources at 2.5cm to 5cm distant. However, the sensitivity was measured, approximately in proportion to the area of pin-hole. Seventy cases of thyroid scintigrams have been taken by using a variety of pin-hole collimators. It was concluded that improved resolution of thyroid images was observed by using a smaller pin-hole, valuable in interpretation of small cold nodules.

A Method of Thyroid Test: Simultaneous Administration of Two Nuclides and Its Data Processing by a Minicomputer System

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A minicomputer system was used for the improvement of the thyroid function test and in this report, the simultaneous measurement of two nuclides (I-131 and Tc-99m) were studied.

Method :

After the intravenous injection of I-131 and Tc-99m, gamma camera (Nuclear Chicago, PHO/GAMMA HP) and a minicomputer system (Nova 1200 16K words, moving head disk 4047A Diablo 31, graphic computer ter-

minal 4002A Tektronix Inc., hard copy unit 4601 Tektronix Inc., magnetic tape recorder TMZ.) were used to record the distribution of radioactivities in every one minute, and to store the results in disk-memory,

After the end of 40 minutes recording, the data were transferred on the magnetic tape.

After the intravenous injection of the nuclides, the images from gamma camera were displayed on the CRT as the maps of each nuclide and also the dynamic studies of each