

A New Method for Obtaining Scintillation Camera Images with Serial Flow Camera

K. NAKAZAWA, S. HASHIMOTO and K. YODA

Department of Radiology, Kitasato University Hospital, Sagamihara

K. KINOSITA and T. TANAKA

Shimadzu Seisakusho, Ltd.

Nowadays, there are increasingly many cases in which the images of such large organs as the whole lungs and the liver (including the spleen) are obtained from the scintillation camera. However, the effective field of the usual scintillation camera with the parallel hole collimator is so small that it is difficult to obtain the whole image of such a large organ within the field of the camera. In comparison with this, the camera with a diverging collimator and a pin hole collimator is able to obtain the image within a single field, but these images obtained are mostly distorted. So, we worked out a system to obtain the image of the large organ within the field of the camera without any distortion, by using the usual scintillation camera with a parallel hole collimator.

In principle, by scanning the object in the given direction, using the detector with the slit type of

collimator, a large rectangular effective field which is the diameter of the collimator by the moving distance of the detector in dimensions can be gained, and it becomes possible to obtain the image of the large organ within it.

In practice, the detector is fixed and the linear bed which the object is lying on is placed under the detector and moved in the given direction at the given rate. Then, the image of the object as well as the bed is obtained, moving in the given direction, on the CRT, and recorded continuously on the film of 35 mm wide through the slit, setting the serial flow camera.

The above mentioned devices enable us to obtain the image of the large organ as the lung and liver without any distortion within the field. In the same way, the scintillation camera image of the whole body also can be obtained by moving the bed lengthways.

Study On Longitudinal Simultaneous Multiplane Tomographic Radioisotopic Imaging With A Scintillation Camera

Y. NAKANISHI, M. MATSUO, T. MAEDA and K. NARABAYASHI

Department of Radiology, Kobe University School of Medicine, Kobe

A new system is proposed for gamma ray longitudinal simultaneous multiplane tomography using a scintillation camera and a new type of collimator "The Tomocollimator" which was originally designed by authors.

This new type of "The Tomocollimator" is a multichannel collimator with 1400 parallel holes made of tungsten. The detector containing 11.5 in-dia crystal is fitted with "The Tomocollimator".

Principles of New Method of Tomography

As the detector head moves back and forth in a linear motion, the angle of inclination of the channels, which at all time are parallel to each other, should change accordingly so that one channel is always focused on the same point in the plane of interest, during this back and forth linear motion of the detector head. For example, the channel at the center of the detector head should always be focused on the center point of