

On the Device of Nuclear Image Tube Camera

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Conventional scintiscanner visualize the body distribution of radioisotopes by spending 30 to 40 min. for the larger organs such as lung and liver. Therefore it is neither suitable for the dynamic record of the body distribution of radioisotopes which changes time by time nor the visualization of organ from different angles.

The stationary camera device such as scintillation camera by Anger, autofluoroscope by Bender & Blau, spark chamber camera by Horwitz & Lansiaart & image tube scintillation camera by Ter-Pogossian are devised to overcome the disadvantage of the scinti-scanner technique.

Authors are performing further improve-tube scintillation camera and applied this camera for the visualization of the body distribution of ^{99m}Tc labelled compound and others.

This camera consists of multi-hole collimator with 3,600 pieces of $3\text{mm}\phi \times 30\text{mm}$ & 0.4mm thick lead cylinder, x-ray image tube

($9''\phi$), optical system and polaroid camera.

γ rays which is directed towards the surface of the image tube by multi-hole collimator is intensified by the factor of 2,000 times and is focused on the final photoelectric cathod. The final picture was recorded by polaroid camera (ASA 3,000 or 10,000) with tandem lens system.

Using phantoms 10 min. for 2mCi ^{125}I , 2 min. for 10mCi of ^{99m}Tc , 2 min. for 17.5 mCi ^{197}Hg and 1 min. for 15mCi ^{133}Xe were found to be necessary.

Three hours after i.v. injection of 200 μCi ^{197}Hg into rat, kidney was visualized by 5 min. exposure.

After seven mCi of $^{99m}\text{Tc}_2\text{S}_7$ colloid injection human liver was visualized by 5 min. exposure. The process of ^{99m}Tc O_4^- gastric absorption was recorded 3, 8, 15, 22, 30 & 54 min. after oral administration of this solution.

Authors has recent manufactured the image ment of this camera by modifying tube, lens-system and collimators.

Sciniti Camera

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Recently, the development of scintiscanner makes a great progress in the field of diagnosis. But the scanning methods has a great disadvantage, that is, it takes a long time to get a result.

This disadvantage could not neglect as far as using the scanning technic. To avoid the

disadvantage, many trials are offered as fibrid scanning which improve the scanning method and stationary apparatuses which are scinticamera, image technic, mosaic crystal technic, spark chamber and special tubes.

In our clinic, a scinticamera is discussed and built for reserches. Some improved