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A STUDY ON THE CONDITIONS OF Ga-67 IMAGING BY SCINTILLATION CAMERA. H.Shinohara, Y. Koga, T.Yamanokuchi and T.Hishida. Showa University,Fujigaoka Hospital and Showa university Hospital. Yokohama and Tokyo

Ga-67 is recognized as a useful tumor-scanning agent. Although a several kinds of low-energy parallel-hole collimators are available in manufacture, those for high energy are limited. Moreover, the collimator for Ga-67 imaging recommended by one manufacture is not always agree with the one by another. We attempted to determine the collimator suitable for Ga-67 imaging in 3 windows on the basis of the contrast efficiency concept developed by Rollo et al. For this purpose the modified Rollo phantom of which both lesion radius ($4.4\phi \sim 12.5\phi_{mm}$; $\sqrt{2}$ step) and contrast ($0.25 \sim 0.707$; $\sqrt{2}$ step) change in four steps was made. It was imaged by LFOV, with 300 or 360 kev collimator, respectively, with 20% window at the same time. In addition to this phantom images, the same patient's images taken with the two collimators were observed by radiologist and technologists. It was concluded that the quality of images with 360 kev collimator was excellent than that with 300 kev. According to CE (contrast efficiency), spatial resolution with 360 kev collimator is superier than that with 300 kev. On the contrary, PI (performance index) indicates the superiority of 300 kev collimator. The difference between two indices is based on the difference in their plane sensitivity. PI was not always consistent with visual test.

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THE COMPUTER PROCESSED IMAGES AND DATA ON THE X-RAY FILM. T.Fukuda,H.Akagi,S. Wakabayashi,S.Takahashi and M.Hosoba. Osaka Medical School and Shimadzu Corporation. Osaka and Kyoto.

The hardware and software were studied for taking the computer processed images and data on the X-ray films with the Microdot Imager which belonged to the scintillation camera. For this purpose, some improvements were done in the installed computer system. For taking better quarity images, the linearity of A/D module was the most important. When it was not good, the lattice parttern was appeared on the exposed images and could not be used. Seven groupes of commercialy avairable A/D modules were tested and selected the best one. To reduce the elapsed imaging time on the Microdot Imager, the stored list mode data were directly fed to the imager adding minimal necessary processing. Finaly the time became from some minutes to seconds orders. Adding ROI display programs, not only images but also ROI areas and their histogram curves could be taken in one film. We reached the conclusion that this could be used in the routine works.

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A STUDY OF STEREOSCINTIGRAPHY. K.Sasaki,A.Umayahara and T.Muranaka. Department of Radiology, National Fukuoka Central Hospital, Fukuoka.

Since the ordinary scintigrams are a plane figure, we often find difficulty in reading of them. Three-dimensional scintigrams will make the diagnosis much easier. We performed some experimental and clinical studies of stereoscintigraphy using an Anger camera. The three-dimensional effect became larger as the angle at which the stereoscintigram was taken became larger. However, some of the stereopairs didn't overlap at a too large angle. The adequate angle seemed to be about 5.°. The stereoscintigram of radioactive source in some shape and position didn't show three-dimensional effect. In spite of that, the stereoscintigraphy was of use in diagnosis of bone, liver and cardiovascular scintigraphy.

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EVALUATION OF GATED CARDIAC IMAGER SYSTEM. S.Yonamine,S.Chiba,K.Kumagai,K.Kawaguchi, H.Murata,K.Chiba,H.Yamada,M.Noguchi,H.Toyama,E.Otake,M.Iio, and S.Tanimoto,S.Takano T.Kanaiso, Tokyo Metropolitan Geriatric Hospital and Tokyo Shimadzu.

We deveroped Gated Caridac Imager System This system was composed of Gamma Camera, ECG,Microdot Imager, and Gated cardiac controler. It generated gated cardiac image that synchronized R wave of EcG without computer system. The system also had additional two charactaristic functions. One is markers of contractive phase under each frames printed on ECG wave. Another is mesh crossing by six carsoles of X and Y axis. In clinical application, EF was estimated by area method using Green's algolism, and was compared with EF by count method using computer system. Correlation of EF between area method and count method was 0.909 in 23 cases.Cardiac images at ED and ES phase were noted briefly by markers. Abnormal contraction were identified easily by the mesh. In conclusion, Gated Cardiac Imager system would be able to obtain ventricular function briefly and cheaply.