with P.H.R. and L.E.A.P. Focal length of C.H.R. was calculated to be 38 cm. When C.H.R. was used, position and size of images changed according to the position of the source in a phantom showing significant difference from parallel collimators.

Clinical evaluation of the gamma camera was demonstrated in representative studies of hepatic dynamic and static images in a patient with liver metastasis, static brain images in a patient with tumor of pons and cardiac dyanmic images.

The characteristic features of LFOV gamma camera are: (1) arge effective field size, which enables imaging of large organ like the lung and easy positioning of a organ in dynamic study, (2) good spatial resolution without sacrificing sensitivity with the use of C.H.R., (3) magnified images with C.G.R., which makes it easy to set R.O.I. in a small organ such as the heart. However, change in relative position and size according to the depth of the lesion has to be carefully taken into consideration when converging collimator is used.

Basic and Clinical Assessment of a Large Field of View Scintillation Camera

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The LFOV has 37 photomultiplier tubes with a field of view of 15.25 in. using parallel-hole collimator.

A comparative assessment of the Pho/Gamma LFOV scintillation camera was made with the Ohio Nuclear 100 and Pho/Gamma III.

Measurements were made with ^{99m}Tc, 140 keV energy by using a 30 keV window width.

Spatial resolution; The parameters of resolution measured were full width at half-maximum (FWHM) of the line-source response function and phantom images.

The radioactive line source was made with a 0.8 mm×20 cm tube. System resolution of the LFOV collimators for ^{99m}Tc as a function of distance from the surface of the collimators are shown in Table 1 by FWHM which was computed by a minicomputer (best results of the high resolution collimator (HRC) can be seen in Table 1).

The results of bar phantom images at the surface of the collimators were also obtained. All the images contained a total of 999 k counts. The HRC of the LFOV resolved a 4 mm bar lead but not 2.3 mm. The HRP of the Ohio Nuclear 100 resolved a 5 mm bar. The parallel-hole collimator of Pho/Gamma III resolved a 6 mm bar lead.

Sensitivity with collimator: The relative sensitivity per ^{99m}Tc flood-field source was obtained by recording the counts per 10 seconds. Among the 5 collimators of the LFOV camera HEC gave the best results, followed by HEP.

The field of the LFOV was sufficient to encompass both lungs with better definition of pulmonary structures.

The increase in sensitivity and field size also made it possible to accomplish total-body surveys in about 4 images.

The LFOV converging collimator demonstrated better depth response than the parallel-hole collimators. Static brain images revealed a marked improvement in resolution for deep structures.

Table 1. System resolution (FWHM) for ^{99m}Tc versus distance from collimator surface for each collimator

Collimator	HRC	HRP	MARC	HEP	HEC
0	7.0	7.8	7.8	7.8	8.7
5	7.7	8.1	9.7	11.7	10.5
10	8.0	10.0	12.6	15.5	15.0
15	9.9	11.7	15.6	18.8	17.9