Pho/Gamma HP scintillation camera.

The tuberculous kidneys were grouped according to Lattimer's roentgen classification. Renal images were classified into 5 types; Type 0: normal renal image, Type 1: partially decreased activity, but with no visible irregularity of the renal image, Type 2: visible irregularity of the renal image, Type 3: about 50% defect in the renal image, or extremely low activity and Type 4: invisible renal image.

Renal images with ^{99m}Tc-DMS showed change of parenchyma more exactly than excretory urograms. The combined examination, renal imaging and excretory urography, is useful in investigating tuberculous kidneys.

group	small	medium		large		total
	0	1	2	3	4	
Type						
0	6	4	2			12
1		1	4	5	1	11
2			6	12	11	29
3				1	14	15
4					18	18
Total	6	5	12	18	44	85

^{99m}Tc-DMS Renal Scintitomography by PHO/CON

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PHO/CON TM Multi-Plane Imager System (Searle Radiographic Inc.) was used for renal imaging with ^{99m}Tc-DMS.

The purpose of the present study is to evaluate the renal tomoscintigraph by PHO/CON clinically.

Materials & Methods

Renal tomoscintigraphs were studied in 60 patients whose ages ranged between 3 to 75 years. The 60 cases included 4 renal carcinoma, 2 renal cyst, 6 polycystic kidney, 6 hydronephrosis, 2 renal tuberculosis, 11 pyelonephritis, 5 renal calculus and 1 contracted kidney. The remaining 23 cases suffered from microscopic hematuria or proteinuria.

^{99m}Tc-DMS was applied to all cases and a dose of up to 4 mCi was used depending upon the age and stature of the patients. Scintiphotos were obtained 2 hour after intravenous bolus injection.

Renal static scintiphotos were made on prone position with a scintillation camera (Nuclear Chicago Pho/Gamma HP) and a parallel-hole high-resolution collimator. These images were followed by scintiphotos of each kidney using a pinhole collimator. Then on supine position renal tomoscintiphotos were made by the PHO/CON.

The PHO/CON system had two detectors, upper and lower. Six anterior and 6 posterior tomographic planes, equally spaced, were obtained at one scanning. The distance between two adjacent tomographic planes was dependent on the collimator and on the setting of the tomographic separation switch. In these studies the switch No. 2 (distances of planes from the collimator were 7.1, 7.8, 8.5, 9.3, 10.0 and 10.7 cm) was selected.

Results & Conclusion

Scintiphotographs of a variety of renal diseases were presented.

In adult patients the posterior 6 tomographic planes by the lower detector were imaged clearly but the anterior 6 tomographic planes by the upper detector were not clear and the anterior 6 tomographic planes were of no clinical value.

The lesion of renal parenchyma was visualized more clearly by PHO/CON than by a scinticamera. Especially in peripheral parenchyma the scintitomograph gave accurate information for diagnosis. But due to respiratory movement of the kidney, the scintitomographs did not provide as much information as those of brain and bone.