black of the patient held in the sitting position. Additional later scintiphotos may be obtained if necessary. Scintigraphic findings thus obtained are classified roughly into 2 types, normal and abnormal, according to their pattern of changes with time. In the normal type, the kidney, renal pelves and ureter are successively visualized and then disappear, while the radioactivity in the bladder becomes progressively increased. In Contrast, the abnormal type, especially a pattern of obstructive type, is characterized by a delayed functional image of ^{131}I-Hippurate and its image retained or remained in the upper portion of the urinary tract.

We performed this procedure in children with nephritis or pyelitis with a protracted course or repeated recurrences and evaluated the degree of functional integrity of the kidney and ureter from serial renal RI images. Findings thus obtained in part of the patients permitted us to confirm the presence of obstruction at the renal pelvis or ureter.

In this paper some of our cases with malformation or stricture of the upper urinary tract demonstrated by this radiodiagnostic procedure were presented, together with a comparison of renal scintigram and excretory pyelogram paticularly with regard to their diagnostic efficiency in upper urinary tract obstruction.

Clinical Evaluation of Renoscintiphoto in Hydronephrosis

S. Ikeda*, A. Ishibashi*, K. Ishii**, K. Yoda**, and S. Hashimoto**
*Department of Urology, School of Medicine, Kitasato University
**Department of Radiology, School of Medicine, Kitasato University

Renoscintiphoto is one of the methods to assess functional impairment of renal tissue damaged by hydronephrosis and may predict the potential reversibility of the kidney function.

A total of 248, ^{131}I-Hippuran image studies in 89 hydronephrotic patients were reviewed.

After bolus injection of ^{131}I-Hippuran (200–500 uCi), renoscitiphotos were taken by means of Nuclear Chicago's Pho/Gamma HP scintillation camera. Minicomputer CDS 4096 was used to process the data.

The obtained images were divided into 3 main groups according to the figure, accumulation and excretion, and subdivided into four, three, and seven subgroups respectively. Each group was compared with ROI renogram and scored 0 to 5, according to its function. Generally, small score means good function.

The total score of each case correlated to renogram pattern and I.V.P. pattern.

For clinical study, photographs of pre- and post-operative cases were studied using this score index. Operative cases scored below 5 showed significantly high reversibility of the renal function, while cases beyond 5 seldom restored their function.

This scoring method seems to be useful to predict prognosis of hydronephrosis.

Evaluation of Renal Images by ^{99m}Tc-DMS in Tuberculous Kidneys

M. Ueda, A. Kido, M. Miki, Y. Ohishi, M. Yanagisawa and T. Machida
Department of Urology, Jikei University School of Medicine

Renal imaging by ^{99m}Tc-DMS is useful in investigating the renal parenchyma. Excretory urograms generally show changes of calyces and pelvis in tuberculous kidneys, but hardly give clear images of the renal parenchyma.

Tuberculous 85 kidneys in 65 cases, 40 males were investigated by renal imaging with ^{99m}Tc-DMS (1-10 mCi) and renal images were compared with excretory urograms. The apparatus used were Aloka's RVE 204 and Nuclear Chicago's

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

M. Miki*, Y. Ohishi*, M. Ueda*, A. Kido*, M. Yanagisawa*, T. Machida*, K. Kawakami** and N. Katsuyama**

*Department of Urology, Jikei University, School of Medicine
**Department of Radiology, Jikei University, School of Medicine

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.