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CLINICAL APPLICATION OF ESOPHAGEAL DYNAMIC SCAN.

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Esophageal clearance of 146 population samples was studied and analyzed. Population consisted of 38 normal subjects; 47 patients with esophagitis; 28 with chronic lung disease; 15 with angina pectoris; 8 with cerebrovascular disease; and 7 with diabetes mellitus. After at least a 5 hrs' fast, the subject was placed supine under the gamma camera. Solution consisting of 0.3mCi of Tc-99m-DTPA, water and simple syrup was ingested in a single swallow followed by dry swallows at 15 sec. interval for 10 min. The count rate within the esophagus was recorded to determine the esophageal transit rate using the following formula adopted from the study of Tolin, et al: Ct=(Emax-Et)/Emax * 100(Ct=percent esophageal transit at time t; Emax=maximal count rate; Et=count rate at time t). Total percent clearance, C40, and the number of swallow in which clearance exceeds 80 % of C40, Cx, were determined. C40 was 89.0 ± 4.4 % and Cx 1.5 ± 0.8 times among the normal subject. Among patients with esophagitis, chronic lung disease, angina pectoris and cerebrovascular disease, C40 was 82.9 ± 11.7, 80.8 ± 11.5, 87.3 ± 8.2 and 80.0 ± 22.0 and Cx was 3.9 ± 6.0, 7.1 ± 7.4, 3.1 ± 3.1 and 5.1 ± 3.3 respectively. Cx of the patients with various disease compared to those of normal subjects differed significantly ($P < 0.05$). Improvement in clearance after therapy was also demonstrable. Esophageal scintigraphy provides a noninvasive, quantitative and sensitive analysis of esophageal motility. Clinical applications, such as objective assessment of the effect of therapy, severity of disease and follow up of disease are numerous.

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THE DETECTION OF GASTRO-ESOPHAGEAL REFLUX (GER) BY RADIONUCLIDE SCINTIGRAPHY-CLINICAL EVALUATION COMPARED WITH OTHER MODALITIES.

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Radionuclide studies of gastroesophageal function have recently attracted much interest, we validated the method of detection of GER first described by Malmud. We modified the method and evaluated the usefulness of gastro-esophageal scintiscan comparing with other modalities, i.e. upper G-I series and endoscopy. Tc-99m-Sn-Colloid (1mCi) were orally administered together with 250ml of orange juice after overnight fast. Serial anterior images of the abdomen were taken first in sitting for 10min., and later in supine position fastened by abdominal binder increasing the pressure by every 20mmHg up until 100 or 120mmHg. Also image data simultaneously stored in minicomputer(Scintipac 2400) were analyzed setting ROIs on the stomach, esophagus and lung as background. In the present study with 15 patients with clinically suspected GER, we encountered 6 cases of GER demonstrated by this method. Comparing with the radiographic and endoscopic findings, there is no definite correlation. Analyzing the pattern of time-activity curves in positive cases, we could classify into 3 groups, i.e. flat type, gradually increasing type and delayed peak type.

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VISUALIZATION OF THE SITE OF GASTROINTESTINAL BLEEDING BY SCINTIGRAPHY WITH In-111 LABELED RBC.

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For the detection of the site of GI bleeding,many methods have been used for many years, but the site of GI bleeding has been difficult to detect.
We have attempted detecting and locating GI bleeding by scintigraphy with 1mCi of In-111-RBC in 4 patients.
The advantage of this method are as follows;
1) In-111 oxine binds strongly to the RBC.
2) In-111 is not excreted into the GI tract.
Results;
1) Labeling efficiency was 90%.
2) Localization of In-111-RBC can clearly demonstrated over the 5 day period.
3) The site of GI bleeding was observed in all examined.
In conclusion, In-111-RBC method would be clinically useful for the visualization of the site of GI bleeding.

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DIAGNOSIS OF POST-SURGICAL ABDOMINAL INFECTIONS USING In-111 LABELED LEUKOCYTE IMAGING.

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Indium-111 labeled leukocyte imaging was reportedly a reliable method for the diagnosis and location of acute infectious disorders,because there was no excretion to GI tract. This study was undertaken to evaluate the usefulness of this method for the patients suspected with intraabdominal abscess or infection.The patients were continuing fever after surgery were diagnosed and compared with CT and US. These modalities are non-invasive and useful methods for detecting post-surgical abscess but bowel gas or metallic artifact often disturbes a diagnosis with CT and US. In-111 labeled leukocyte imaging in these conditions, was more useful method and was able to estimate the inflammatory activity in the lesion. But it had more problems for the patient's condition to need a emergency.