DIAGNOSIS OF OVARIAN TUMOR AND CERVICAL CARCINOMA BY COMBINED USE OF ULTRASONOGRAPHY (USG), X-RAY CT AND EMISSION CT (ECT).


We have evaluated the combined use of USG, X-CT and Ga-67-computed scintigraphy as a diagnostic method for ovarian tumors. In order to obtain a more accurate diagnosis, a new method of comparing USG, X-CT and Ga-C.S. on the same plane was evaluated. First the tomographic axes of USG and X-CT were changed using a three-dimensional reconstruction method, and then ECT was tried after conventional Ga-C.S. Comparison of the images produced by USG, X-CT and ECT on the same plane best be achieved from horizontal sections at present. The clinical usefulness of this method in the diagnosis of ovarian tumor and cervical carcinoma was evaluated.

Forty-three ovarian tumors which were suspected, from USG screening, to be malignant and 12 cervical carcinomas were examined. The combined use of USG, X-CT and Ga-C.S. allowed the differentiation between benignancy and malignancy in 93.8% of the cases of ovarian tumor. When ECT was added, the rate of differentiation rose to 95.3%.

In cervical carcinomas, ECT horizontal images well corresponded with the X-CT and/or the USG in such cases as stage II, III and recurrence, and was useful for the evaluation of infiltration.

CLINICAL EVALUATION OF THE THORACIC Ga-67 SCINTIGRAPHY FOR LUNG CANCER AND MALIGNANT LYMPHOMA.


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Ga-67 is widely used to decide the localization and the effect of treatment for malignant tumors in spite of no definition of its concentration mechanism and the same affinity for inflammation.

There were examined sixty cases, primary lung cancer 44 and malignant lymphoma 16. All cases were studied by XCT at the same time and 25 cases were gained SPECT images.

Primary lung cancer: XCT couldn’t differentiate tumor from atelectasis or pleural effusion, Ga scintigram were effective in 6 cases. Sensitivity of Ga in lung lesion was 84% but only 25% less than 3.0cm in diameter.

In detecting mediastinal involvement with XCT in 12 thoracotomy cases, sensitivity and specificity were 33% and 100% respectively. 84% of inoperable cases were in accord with XCT finding. ECT was very effective to differentiate the sternum and the thoracic vertebra, it displayed mediastinal node 10mm in length.

Malignant lymphoma: Ga negative finding in re-study was in well agreement with decreased nodal size in XCT.


In the previous meeting, we reported Tl-201/Ga-67 uptake ratio as an index of a quantitative method of Ga-67 and Tl-201 scans in primary lung cancer. Here, We performed fundamental studies concerning volume correction using phantoms, and tried to assess whether either Ga-67 uptake or Tl-201 uptake was able to be evaluated respectively and also they were useful indicators. Patients consisted of 24 with primary lung cancer histologically confirmed. In the five values, namely T-N/N, T-N/ND, T-N/NDA of Ga-67 or Tl-201, Tl-201/Ga-67 crude uptake- and -corrected ratio, the latter two were reported already. We assessed what was the most accurate indicator by experiment with phantom. (T: mean count of ROI of tumor. N: mean count of ROI of normal control lung. D: tumor diameter. λ: depth attenuation ratio of counts) In basic study, T-N/NDA of Ga-67 and Tl-201/Ga-67 crude uptake ratios seemed accurate parameters in quantitative evaluation. Although T-N/NDA of Ga-67 was compared with histology, it was not significantly differ from cell types. Tl-201/Ga-67 crude uptake ratio was well correlated with histology and was considered as the most useful parameter on quantitative evaluation of Ga-67 and Tl-201 scans in primary lung cancer.