

Isotopic Localization of the Placenta

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Localization of the placenta is important in the management and basic study of the obstetric patient.

Placentography with radioactive isotopes is based on the fact that the placenta contains wide sinusoids and intervillous spaces. In this area, therefore, a large amount of maternal blood is pooled, various methods with different isotopes (^{24}Na , ^{131}I , ^{132}I , ^{51}Cr , $^{99\text{m}}\text{Tc}$, etc.) are in use to locate placental site.

We use from 7 to 20 μCi of radiiodinated (^{131}I) human serum albumin.

On preparation for the procedure, iodine is given to the mother to block uptake of ^{131}I by the fetal thyroid. ^{131}I HSA is injected

into the antecubital vein and after allowing 5 to 10 minutes to permit through mixture with the blood, counts are made.

First the uptake is determined by a scintillation counter in each of the 12 order 9 areas into which the abdomen is divided and the accuracy rate of 33% in 32 cases.

And then we determined by the linear scanning method (3 direction) and the accuracy rate of 43% in 32 cases.

Isotopic localization of the placenta with ^{131}I -HSA is a simple method of detecting of the placental site, but in the future many problems awaiting solution on the accuracy rate.

Application of Radiolymphography Utilizing Radioactive Colloidal Gold for Lymph Node Metastasis in Gynecological Field

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It is of importance for the diagnosis and the treatment of gynecological cancer to examine the pelvic-abdominal lymphatic system. At the present time, lymphography, oily contrast medium is injected directly into the lymphatic vessels is used for this purpose, that is a very useful method for the diagnosis of the lymphatic lesions.

On the other hand, radiolymphography using radioisotope into the lymphatic system, provides not only diagnostic meanings by the scanning procedure, but also the therapeutic potential by the selective distribution of radiation dose of RI.

Usually, the radioactive colloidal particles (^{198}Au , ^{177}Lu , ^{90}Y etc.) or radioactive oily contrast medium (Ethiodol- ^{131}I , Popiodol- ^{131}I) are used for this purpose. The uptake of these materials depends on the node's physiologic integrity.

The route of administration consists of two methods; direct injection into the lymphatic vessels of the dorsum of each foot and indirect injection into the lymphatic vessels of the dorsum of each foot and indirect injection into the parametrial tissue or the subcutaneous tissue (the first or second interdigital space of each foot). Although, there are some technical disadvantages in the former procedure. The localization of radiocolloid in the pelvic-abdominal lymph nodes by this method, however, is safer, higher and more rapid than by the latter procedure. On the other hand, the subcutaneous infusion of tracer dose is a simple procedure that requires no skill and no surgical intervention. Because of its low activity and slow accumulation, scanning of the inguinal, iliac and abdominal areas must be done

twenty-four to forty-eight hours after injection.

Clinical use of radiolymphography utilizing colloidal ^{198}Au have been studied and discussed in the patients with cancer of the cervix.

The clinical evaluations of this study were as follows:

1) The pelvic-abdominal ^{198}Au lymph scan shows good visualization of the inguinal, iliac and periaortic chain of activity, that is a useful method for the detection of the lymphatic abnormality. A good correlation is found be-

tween the lymph scan, the contrast lymphogram and the patient's clinical status. The lymph scan, however, offers less morphological information that is obtained from the oil lymphogram.

2) The intralymphatic administration of radiation dose of RI can be used as a therapeutic adjunct in small disseminated nests of early metastasis. The irradiation effect, however, is not warranted in large metastatic nodes. In the present time, this method is thought, therefore, to be supplementary for external and intracavitary irradiation.

Radiolymphography

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Radiolymphography with ^{198}Au -colloids injected subcutaneously in the bilateral dorsi of foot were performed in the patients with uterine cancer. ^{198}Au -colloids were transported by lymphatic system and deposited in the lymphnodes (mainly inguinal, iliac and paraortic) within 24 hours, though about 30~70% of ^{198}Au remained around the injected site, and these percentages represented roughly the grade of retention of lymphatic drainage due to involvement of lymphnodes.

Linear scanning was performed upward from the injected site. Some peaks of activity curve were revealed within 4 hours p.i. in some cases, but these peaks reached maximum usually 24 hours p.i.

In cases with edema of lower extremity due to cancer invasion, we observed the corresponding changes of activity curve, elevated curve on the site of edema and decreased peak on the involved nodes. Scintigraphy, performed usually 24 hours p.i. (each 50~100 μCi) reveal lymphnodes, but less accurately than roentgenologic lymphography does, because radiolymphography demonstrates no details of the structure nor small metastatic lesion of lymphnodes. By serial linear scanning in the elapse of time after injection of ^{198}Au , it will be possible to estimate somewhat dynamics of lymphatic system. But radiolymphography has the advantage, easily to be performed and to be repeated in the same patient.

Radiation Dose to the Gonads and Fetus Due to Radioisotope Examination in Obstetrics and Gynecology

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Risk of radiation due to radioisotope (RI) examination in obstetrics and gynecology should be discussed not only somatically, but also genetically. Inquiry was sent to the

hospitals in Japan about the numbers of cases, age distribution of them and individual dose of RI for examination in these fields during the period of 1967 and the first half