

252

THE USE OF LUNG SCANNINGS IN THE DIAGNOSIS OF ENDOBRONCHIAL FOREIGN BODIES. S.TSUTSUI, H.SHIBATSUJI, N.YASUDA, K.TANAKA, S.HAMADA, Y.SATO and I.FUSHIMI. NARA MED.UNIV. °NARA HOSP.and °SAISEIKAI SUITA HOSP. KASHIHARA, NARA and SUITA.

Foreign body aspiration is a common accident in children. The correct diagnosis of radiolucent endobronchial foreign bodies is often difficult. These physical findings are non-specific and conventional roentgenogram shows only minimal changes.

The foreign body in the lung acts as a check valve mechanism, resulting in hypoxia. In the washin phase of ventilation on the scintigraphy, the obstructive area is shown as a direct and in the washout phase, it is shown as a trapping of Xe-133 gas.

Blood flow scintigraphy shows a significant perfusion defect. One of the mechanisms of hypoperfusion is the local hypoxia, which leads to vaso-contraction through local reflex. Therefore a local lesion is more clearer in ventilation distribution than in blood flow perfusion.

It is very useful to take pulmonary blood flow scintigraphy and ventilation scintigraphy in the diagnosis of radiolucent endobronchial foreign bodies.

253

STUDIES ON GALLIUM ACCUMULATION IN INFLAMMATORY LESIONS : UPTAKE BY ESCHERICHIA COLI. K. Nakamura and H. Orii. Tokyo Metropolitan Institute of Medical Science.

Since bacteria is the main components of inflammatory lesions, the mechanism of Ga-67 uptake by *Escherichia coli* was examined. Materials and Methods. Before use *E. coli* was grown in Tryptone (T-) or Tryptic soy (TS-) broth at 37°C. Two ml of bacteria in various media (10⁹/ml) was incubated with 0.1 µCi/ml of Ga-67 at 37°C. The results were expressed at the amount of Ga-67 uptake per 100 µg of bacterial protein (cpm/100 µg Prot.)

Results. Uptake of Ga-67 by *E. coli* incubated in T- or TS- broth, which are suitable media for the growth of *E. coli*, were much less than those in modified Hank's and Lock's solutions. The uptake in growth media was scarcely dependent on the growth of *E. coli*, suggesting that the uptake may involve other process than metabolic one. Different time course of uptake and effects of Fe were demonstrated for *E. coli* pre-cultured in T- and TS- brothes. Contents of Fe in *E. coli* incubated in presence and absence of Fe have also indicated that the pre-culture conditions of *E. coli* have affected the transport of Fe as well as Ga.

254

ON THE MECHANISM OF INFLAMMATORY ACCUMULATION OF GALLIUM. K.Samezima, K. Koike, H.Orii. Tokyo Metropolitan Institute of Medical Science. Hon-Komagome. Tokyo 113.

Accumulation of gallium in abscesses and inflammatory lesions has been well documented, but its mechanisms remains unclear. Some investigators have reported the participation of polymorphonuclear leukocytes (PMN) for uptaking Ga-67 in inflammatory lesions. However, we have noticed that the amounts of Ga-67 bound to PMN is extremely small compared to plasma binding from 6 hrs through 24 hrs.

In Ga-67 injected rat plasma, it is obvious that most of Ga-67 binding is due to MW 80,000 transferrin, as far as the studies on Sephadex gel filtration are concerned. Quantitative estimation of transferrin in inflammatory site by immuno-diffusion method is now in progress.

255

CLINICAL EVALUATION OF Ga-67 CITRATE SCINTIGRAPHY TO DETECT INFLAMMATORY LESIONS IN PATIENTS WITH UNKNOWN FEVER. N.Tonami, H.Matsuda, K.Nakajima, M.Oguchi, K.Koizumi, A.Tada, K.Ichivanagi, A.Kuwajima, T.Aburano, H.Bunko, T.Maeda, T.Michigishi, S.Miyagishi and K.Hisada. Department of Nuclear Medicine, Kanazawa University, Kanazawa.

Ga-67 scintigraphy was performed in 34 patients with unknown fever and suspected inflammatory lesions. Twenty out of 22 patients (91%) with inflammatory lesions were positive on Ga-67 scintigram. False negative result was seen in two patients, one with subcutaneous abscess under antibiotic treatment and another with ulcerative colitis being diagnosed to have only physiological Ga-67 uptake. One false positive uptake was seen on the operative scar. Ga-67 scintigraphy was useful to detect not only localized abdominal inflammatory lesions but also pulmonary infections which were negative on chest X-ray films.