

cases of interstitial pulmonary disease, 7 cases of chronic bronchitis, 5 cases of emphysema, 4 cases of bronchiectasis were examined.

The patient was studied in a sitting position with a Anger camera. Posterior view was obtained. The patient was held in deep inspiration during first 20 seconds after the injection of 5 mCi of  $^{133}\text{Xe}$  solution. Utilizing the ROI method with a scintillation camera VTR on line system, regional perfusion was studied.

Forced expiration into the spirometer was performed. In this phase regional F.V.C. and F.V.C. 1.0% were studied by the same R.O.I method. After that patient breathed during sufficient time for the complete disappearance of radioactivities in the lung.

Regional washout  $T_{1/2}$  was calculated in this

phase using the same method. Breathing in the closed circuit spirometer systems, which contained  $^{133}\text{Xe}$  expired from the patient and O<sub>2</sub>, inhalation scintiphotos were obtained from the breathing.

#### Result

- 1) Regional F.V.C. is moderately impaired in emphysema and severely in bronchiectasis.
- 2) Regional F.V.C 1.0% is moderately impaired in both chronic bronchitis and bronchiectasis, severely in emphysema.
- 3) The prolongation of the regional washout  $T_{1/2}$  from residual volume was moderate in bronchiectasis and severe in emphysema.
- 4) This examination technique is not so useful for the interstitial pulmonary diseases.

### Abnormal Pulmonary Circulation in Aged Patient Studied by Lung Scintigraphy

M. TANNO, M. YAMAMOTO, K. CHIBA, K. MATSUI, H. YAMADA and M. IIO

*Department of Nuclear Medicine & Radiological Science, Tokyo Metropolitan Geriatric Hospital, Tokyo*

One hundred and nine cases with 59 male (64 y.o.-98 y.o.) and 50 female cases (56 y.o.-91 y.o.) with mean ages of 75.3 and 75.8 y.o. were studied by lung scintigraphy.

High incidence of major fissure sign and decreased effective volume of lower lobes were found among aged cases.

The former represent the band-like decrease in pulmonary arterial perfusion along with major fissure of the lung. And the latter represent the decrease in effectively perfused lung volume.

Major fissure sign was found in 62% in right lung and 60% in left lung. Decreased lower lung

volume was found in 20% in right lung and 28% in left lung.

No significant correlation was found between these findings and the types of pulmonary disorders or types of pathological finding studied by 15 autopsied cases.

However significant correlation was found between these findings and the process of aging.

Authors concluded that diffuse aging process in smaller arteries might be responsible for the high incidence of major fissure sign and predominant aging process of the lung might be initiated from the lower lung-lobes.