Studies on the Unilateral Absence in the Pulmonary Perfusion Scan

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It is not a rare thing to observe the unilateral absence in the pulmonary perfusion scan. From several years ago, we have classified the kymograms of the pulmonary perfusion scan into 6 patterns to understand outlines of diseases, and have studied the cases which showed the unilateral absence or decrease. At the Department of Isotope of the Second Tokyo National Hospital, the pulmonary perfusion scan was performed by using a scintillation camera to 317 cases, and in the 151 cases among them the course of disease was followed by sure clinical observation. And the cases which showed the pattern (IIb and IV groups) of the unilateral absence or decrease in the pulmonary perfusion scan were investigated. The diseases involved in this pattern are such as follows.

(a) bronchogenic carcinoma, (b) parenchymal lung disease (tuberculosis, schistosomiasis, etc.), (c) congenital heart disease, (d) pulmonary embolism, (e) hyperlucent lung syndrome.

In the case of bronchogenic carcinoma the decrease of the vascular bed was observed and it was far beyond the expectation as judged from the roentgenogram of chest.

In the case of parenchymal lung disease a high degree of abnormal changes in lung was observable from the roentgenogram of chest, and it is not necessary to scan the pulmonary perfusion.

The case of congenital heart disease was rare, and it should be examined both by the pulmonary perfusion scan and the heart-lung actinocymography.

Although the pulmonary embolism usually shows the pattern of IIa group is characteristic of fissure sign and shrunken lobe, in some cases the embolism of stem artery was observed.

The hyperlucent lung syndrome was not surely diagnosed by the roentgenogram of chest, but was diagnosed by the angiography. Therefore the pulmonary perfusion scan is important for the purpose of the screening of hyperlucent lung syndrome, too.

In the case above mentioned, the unilateral absence or decrease in the scan of pulmonary perfusion was observed only in 8.8% cases, but the absence or decrease of the vascular bed was not easily diagnosed by the roentgenogram in some cases. Accordingly, we should like to stress the necessity to perform the pulmonary perfusion scan to understand the conditions of pulmonary function in the diseases above mentioned.