

premature closure of small airway. The former was typically exemplified in the case with an emphysematous region of lung where washout delay with prominent hot spot was observed to be characteristic. This type of \dot{V} abnormalities was liable to be less perfused resulting high \dot{V}/\dot{Q} ratio. The latter was exemplified in the case with bronchitic region of lung

where washout delay without hot spot formation was observed to be characteristic. The perfusion of this type was liable to be preserved well resulting low \dot{V}/\dot{Q} . This might be a reason why the bronchitis type of COPD often shows abnormal blood gas findings, whereas the emphysematous type does not.

The Diagnosis of Central Bronchial Carcinoma in Xenon-133 Lung Scintigraphy

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The purpose of this study is to evaluate regional perfusion and ventilation in bronchial carcinoma using serial Xenon-133 lung scintigraphy. Scintigraphic findings were compared with those of bronchography and pulmoangiography. It is well known that the Xenon-133 trapping phenomenon is seen in the lung area of bronchial stenosis.

The patient was studied in a sitting position with a scintillation camera to obtain a posterior view of the lung. The patient held in his breath in maximal inspiration during first 25 seconds after the injection of 4 m Ci of Xenon-133 solution. During this phase a perfusion pattern was observed.

Subsequently a washout phase and an inhalation phase of Xenon-133 were recorded. 19 cases of central bronchial carcinoma were studied, and 4 of them were negative chest

X-rays.

Results: Xenon-133 trapping was seen in 15 cases of 19 patients with central bronchial carcinoma (79%). In 4 cases, while Xe-133 trapping was not seen in the scintiphotos of the lung, ventilatory dead space was observed, which would indicate a combined lesion of bronchial obstruction and arterial interruption. In 5 of the 15 cases, the Xenon-133 trapped lung area was located in the main lesion, and in 10 of them in the adjacent lesion. Thus, a decreased perfusion and/or a bronchial stenosis were observed in all Xenon-133 trapping cases.

The clinical significance of Xenon-133 serial scintigraphy in a case of central bronchial carcinoma is very high when Xenon 133 trapping or ventilatory dead space is recognized.