

## Marked Perfusion Reduction in One Lung

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Lung perfusion scanning has been performed on 1500 patients using  $^{131}\text{I}$ -MAA since 1965 and 101 patients showed markedly decreased perfusion in one lung ranging from zero to 10 percent of the total cardiac output. The purpose of the present study was to differentiate disease entities showing marked unilateral decrease in perfusion as compared to chest radiograms.

The first group of patients showed radiologic changes well suggestive of marked perfusion reduction in one lung (50 patients); they were, unilateral pulmonary agenesis, far advanced pulmonary tuberculosis with giant cavities and fibrothorax, massive atelectasis due to bronchogenic carcinoma and massive mediastinal tumor (malignant teratoma) occupying an entire pleural cavity. The second group of patients were those who showed more marked perfusion reduction than expected from radiological abnormalities (47 patients); they consisted of unilateral pulmonary artery agenesis, aortic arch aneurysm, healed or active pulmonary tuberculosis with multiple cavities and pleural adhesion, bronchogenic carcinoma of hilar type, cystic bronchiectasis and relaxatio diaphragmatica. In these patients detection of marked perfusion abnormality was helpful to reevaluate chest radiograms and originally unnoticed radiologi-

cal abnormalities were found such as lacy patterns and loss of vascular shadows in unilateral pulmonary artery agenesis. The third group of patients showed seemingly normal chest radiograms but perfusion scans revealed marked unilateral perfusion reduction (2 patients); they were, massive pulmonary embolism and bronchiectasis. After scrutiny of chest radiograms following perfusion scanning, decreased vascularity was seen unilaterally in massive pulmonary embolism and faint ring shadows were seen in bronchiectasis. The fourth group of patients showed bilaterally similar diffuse fibrotic shadows on chest radiograms but unilaterally decreased perfusion on lung scans (2 patients); They were diagnosed as having diffuse interstitial fibrosis of the lung but honey-combing could be more pronounced in the one lung where perfusion was markedly decreased.

Lung scanning was not only helpful in revealing the distribution of the pulmonary arterial perfusion in the lungs but also useful in directing attention to unrecognized radiological abnormalities which were essential to differential diagnosis. Disease entities showing marked perfusion decrease were reviewed and categorized in relationship to radiologic changes.