Role of High Resolution CT in Distinguishing Different Causes of Mosaic Pattern In Lung Attenuation

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By
Mustafa Ahmed Khairy Mohamed
(M.B.B.CH. Cairo University)

Supervisors

Dr. Youssriah Yahia Sabri
Professor of Diagnostic Radiology
Faculty of Medicine
Cairo University

Dr. Iman Mohamed Hamdy
Lecturer of Diagnostic Radiology
Faculty of Medicine
Cairo University

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"قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم"

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Abstract

The term mosaic attenuation or pattern refers to a patchwork of regions of differing attenuation detected on HRCT images, and may represent obliterative small airways disease, patchy interstitial disease, or occlusive vascular disease. This mosaic pattern of lung attenuation presents a challenge to the radiologist when deciding which are the abnormal regions of lung, those of low attenuation, those of high attenuation, or both and what is the possible aetiology **.**

Diseases from each of these categories can cause similar patterns of mosaic lung attenuation on CT scans. However, it is sometimes possible to distinguish among these categories by using additional CT findings.

Key Words :

Bronchoalveolar lavage - Kilovolt - Total lung capacity .

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List Of Abbreviations

AEP	**Acute esinophilic pneumonia**
AIDS	**Acquired immunodeficiency syndrome**
AIP	**Acute interstitial pneumonia**
ARDS	**Adult (acute) respiratory distress syndrome**
BAL	**Bronchoalveolar lavage**
CEP	**Chronic esinophilic pneumonia**
CPE	**Chronic pulmonary embolism**
CT	**Computed tomography**
CTEPH	**Chronic thromboembolic pulmonary hypertension**
DLCO	**Carbon monoxide diffusing capacity**
DVT	**Deep venous thrombosis**
FEV1	**Forced expiratory volume in first second**
FOV	**Field of view**
FVC	**Forced vital capacity**
GGO	***Ground glass opacity***

GM-CSF Granulocyte-macrophage colony-stimulating factor

HRCT High resolution computed tomography

IPF Idiopathic pulmonary fibrosis

Kv Kilovolt

mA Milliampere

MinIP Minimum intensity projection

MSCT Multislice computed tomography

NSIP Nonspecific interstitial pneumonia

OB Obliterative Bronchiolitis

PAH Pulmonary arterial hypertension

PAP Pulmonary alveolar proteinosis

PFT Pulmonary function tests

RV Residual volume

SD Standard deviation

TLC Total lung capacity

UIP Usual interstitial pneumonia

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INTRODUCTION

The term mosaic attenuation refers to a patchwork of regions of differing attenuation detected on HRCT images, and may represent obliterative small airways disease, patchy interstitial disease, or occlusive vascular disease .This mosaic pattern of lung attenuation presents a challenge to the radiologist when deciding which are the abnormal regions of lung, those of low attenuation, those of high attenuation, or both **(Lynch, 2008).**

Diseases from each of these categories can cause similar patterns of mosaic lung attenuation on CT scans. However, it is sometimes possible to distinguish among these categories by using additional CT findings **(Hansell, 2001).**

In small airway disease and primary vascular lung disease the pulmonary vessels within the lucent regions of the lung are small compared with the vessels in the more opaque regions of the lung. This discrepancy in vessel size is likely due to local hypoxic reflex vasoconstniction in small-airway disease, whereas the difference in vessel size in primary vascular lung disease is due to the underlying hypoperfusion. In infiltrative lung diseases, the vessels are more uniform in size throughout the different regions of lung attenuation **(Stern et al, 1995).**

Thus, analysis of the size of the pulmonary vessels should be an early step in distinguishing among the causes of a CT mosaic pattern of lung attenuation **(Stern et al, 1995).**

Using paired inspiratory and expiratory CT scans is also useful for distinguishing small airway disease from a primary vascular lung disease. In small-airway disease, the lucent regions of lung seen at inspiration will remain lucent at expiration because of air trapping. Subtle areas of air trapping may be easily differentiated by comparison between inspiratory and expiratory CT scans and thus it is important to include expiratory imaging in the CT evaluation of individuals suspected of having small airways disease **(Stern et al, 1995).**