

ROLE OF MDCT IN DIAGNOSIS OF DIFFERENT CALCIFIED CHEST LESIONS

Thesis

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Radiodiagnosis**

By

Reham Mohammed Abd EL-Hai Refaie

M.B.B.CH (Faculty of Medicine – Cairo University)

Supervised by

Prof. Youssriah Yahia Sabri

Professor of Radiodiagnosis

Faculty of Medicine – Cairo University

Dr. Takeya Ahmed Taymour

Lecturer of Radiodiagnosis

Faculty of Medicine – Cairo University

Dr. HebaAllah Ahmed Moussa

Lecturer of chest

Faculty of Medicine- Cairo university

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Abstract

The role of MDCT imaging in diagnosis and evaluation of different calcified chest lesions is central, being accurate and non-invasive. The cause of such calcifications may be determined by means of the location and pattern of the calcific areas of increased opacity and knowledge of the associated clinical features. MDCT is currently the imaging modality of choice in diagnosis of different calcified chest lesions of different structures, being superior to chest radiography in demonstrating the presence and extent of chest abnormalities.

Keywords: MDC, CECT, PAM

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LIST OF ABBREVIATIONS

MDCT	Multi-detector computed tomography.
NECT	Non-enhanced computed tomography.
CECT	Contrast enhanced computed tomography.
HRCT	High resolution computed tomography.
PFT	Pulmonary function test.
TBB	Trans-bronchial biopsy.
US	Ultrasound.
PAM	Pulmonary alveolar microlithiasis.

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Introduction

Intrathoracic calcifications occur in a wide variety of disorders. Although they are usually harmless sequel of remote processes, calcifications provide an important information for establishing the diagnosis and evaluating the progression of a known disease. They may arise in the pulmonary parenchyma, mediastinum, hilar and mediastinal lymph nodes, pleura, heart, mediastinal vessels and chest wall, or any combination of these structures. The cause of calcifications may be determined by means of the location and pattern within the lung parenchyma and knowledge of the associated clinical features. The clinical manifestations of pulmonary calcifications are usually minimal but occasionally may cause dyspnea. Therefore, they are rarely diagnosed because of their benign clinical course. No correlation is found between the extent of macroscopic calcifications and the clinical symptomatology; massive calcifications can be completely asymptomatic. Calcifications in the thorax are frequently manifestations of previous infectious process, occupational exposure, or previous medical therapy. MDCT is the most sensitive radiological method for detection in differences in radiologic density in chest lesions (**Wang et al., 2010**).

Areas of high attenuation (visually seen as dense as bony structures) in an abnormality on CT scan can be an important clue to the correct diagnosis. The attenuation is mostly caused by calcification, but may also be due to other causes like, iodine barium, or radio-opaque foreign body (**Camey et al., 2005**).

Aim Of The Study

The objective of conducting this research was to detect the role of MDCT in localizing and diagnosis of different calcified chest lesions of different structures.

Chest Anatomy

I-LUNGS:

The two lungs are similar; they are not completely symmetrical, having a different number of lobes and a different bronchial and vascular anatomy (***Webb et al., 2009***).

The left lung: is subdivided into two lobes and thereby, into eight segments: (see fig. 1).

- Left upper lobe: - Left upper lobe proper: apicoposterior, anterior segments.
- - Lingula: superior lingular, inferior lingular segments.

left lower lobe: superior segment or apical segment, and inferior segment or basal segment, which is further subdivided into: anteromedial segment, lateral segment, and posterior segment (***Webb et al., 2009***).

The right lung is subdivided into three lobes with ten segments: (see fig. 1)

- right upper lobe: apical segment, anterior segment, and posterior segment.
- right middle lobe: medial segment, and lateral segment.

right lower lobe: superior segment or apical segment, and inferior segment or basal which further subdivided into: anterior segment, medial segment, lateral segment, & posterior segment (***Webb et al., 2009***).

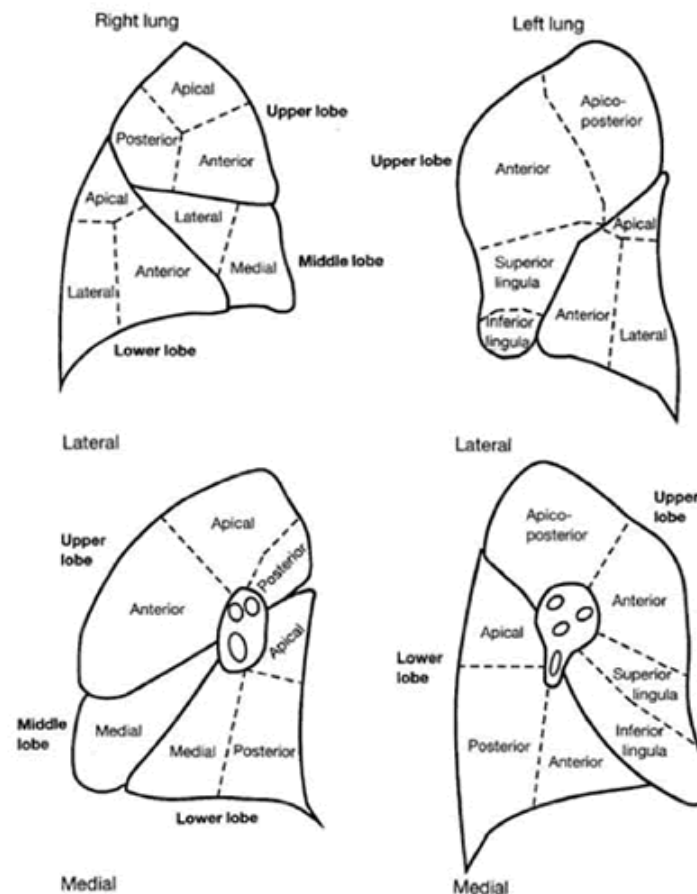


Fig. 1: Lung segments (*Webb et al., 2009*).

II-Pleura:

The pleura is divided into: (see fig. 2)

- **Visceral pleura:** which covers the surface of the lung and dips into the fissures between its lobes.