

# THE ROLE OF MUTI-DETECTOR COMPUTED TOMOGRAPHY IN PEDIATRIC NON-TRAUMATIC NON-CARDIAC THORACIC EMERGENCIES

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## INTRODUCTION

Non-traumatic non-cardiac thoracic emergencies in pediatrics are more frequent than thoracic trauma and are responsible for about 10% of all pediatric emergencies. Roughly 30% of children under 15 years old and over 50% of infants under one year of age die from respiratory-related disorders.<sup>(1)</sup> Since children might suddenly decompensate with any failure of the hemodynamic and respiratory systems, these emergency situations require an early diagnosis in order to establish effective management of time.<sup>(2,3)</sup>

Currently, it is acknowledged that the most important diagnostic technique for precisely analyzing the central airway, circulatory system, mediastinal abnormalities, and lung parenchyma is multi-detector computed tomography (MDCT) employing a low radiation dosage protocol.<sup>(4,5)</sup>

## AIM OF THE WORK

In this study, we reviewed the role of MDCT in pediatric non-traumatic non-cardiac thoracic emergencies.

## PATIENTS AND METHODS

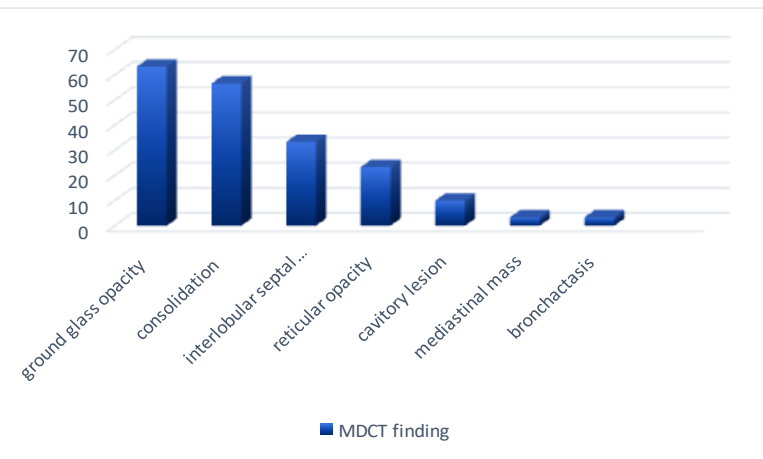
This study involved 30 children who presented with respiratory distress mainly and other symptoms and signs such as; tachypnea, dyspnea, intercostal retractions with or without cyanosis, acute onset of severe stridor, severe wheezy chest or chest pain. They were referred to the Department of Radiology of Alexandria Main University Hospital from the emergency department of El shatby University Hospital for children during the period from January 2020 to December 2022 with no history of traumatic causes or cardiac pathology.

High-resolution computed tomography was conducted with reconstruction algorithm including 3D (three dimensional), MIP, Min IP (Minimal Intensity Projection), and VR (Volume Rendering) techniques. Non-ionic low osmolar intravenous contrast agent was used if needed in a dose of 1-5 –2 ml/kg after reviewing renal function tests and excluding any history of previous allergic reaction.

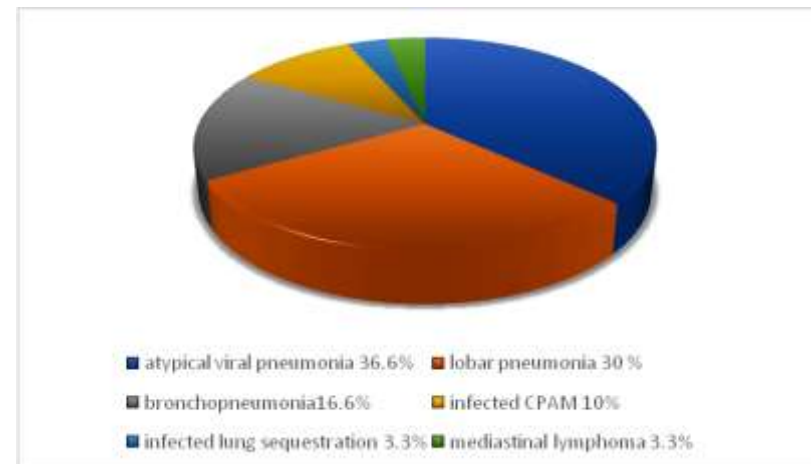
## RESULTS

The most frequent MDCT findings were ground glass opacities (GGOs) that were seen in nineteen patients (63.3%), consolidation was seen in seventeen patients (56.6%), interlobular septal thickening was seen in ten patients (33.3%), reticular opacity was seen in seven patients (23.3%), cavitory lesion in three patients (10.0%), mediastinal mass in one patient (3.3 %) and bronchiectasis in one patient (3.3%) (Figure 1).

On the basis of clinical, laboratory, and radiological data, the final diagnoses were atypical viral pneumonia (36.6%), lobar pneumonia (30%), bronchopneumonia (16.6%), infected CPAM (10%), infected lung sequestration (3.3%), and mediastinal lymphoma (3.3%) (Figure 2).



**Figure 1.**  
Findings on MDCT.



**Figure 2.**  
Final diagnosis of the studied cases.

## CONCLUSION

MDCT in non - traumatic and non – cardiac thoracic emergencies is essential to recognize potentially life-threatening causes such as airway obstruction that have to be promptly recognized to allow a correct and timely therapeutic decision. MDCT in the emergency room allows for an accurate work-up for patients with respiratory distress as it has a very high predictive value (99%) for lung parenchymal and airway diseases.

## REFERENCES

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