

## Low-Dose Chest Computed Tomography Can Help in Differential Diagnosis of Asthma-COPD Overlap Syndrome in Children

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**Abstract :** Rationale: Diagnostic criteria of asthma-COPD overlap syndrome (ACOS) are controversial in pediatrics. Emphysema is characteristic of COPD and usually does not occur in typical asthma; its presence in patients with asthma suggests the concurrence with COPD. Low-dose chest computed tomography (CT) allows a non-invasive assessment of the lung tissue structure. Here we present CT findings of emphysematous changes in a child with ACOS. Patient and Methods: In a 6-year-old boy, atopy was confirmed by a skin prick test using common allergen extracts (grass and tree pollen, house dust mite, molds, cat, dog; manufacturer Stallergenes Greer, London, UK), where reactions over 3 mm were considered positive. Treatment with corticosteroids was started during the course of severe asthma. At 12 years of age, his spirometric parameters deteriorated despite treatment adjustment (VC 1.76 L=85%, FEV1 1.13 L=67%, TI%VCmax 64%, MEF25 19%, TLC 144%) and the bronchodilator test became negative. Results: Low-dose chest CT displayed irregular regions with increased radiolucency of pulmonary parenchyma (typical for hyperinflation in emphysematous changes) in both lungs. This was in accordance with the results of spirometric examination. Conclusions: ACOS is infrequent in children. However, low-dose chest CT scan can be considered to confirm this diagnosis or eliminate other diagnoses when the clinical condition is deteriorating and treatment response is poor.

**Keywords :** child, asthma, low-dose chest CT, ACOS

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