Archives of the Balkan Medical Union
vol. 61, no. 2, pp. 316-319
June 2026
Copyright © 2026 Balkan Medical Union

CASE REPORT

TRANSIENT NEONATAL AIR-FILLED PULMONARY CYST MIMICKING CONGENITAL DIAPHRAGMATIC HERNIA: A CASE REPORT

Ermela CELAJ[1]✉, Marjeta TANKA[2], Ilirjana KLIRONOMI[1], Ermira KOLA[1], Inva GJETA[1], Durim SALA[1], Vladimir HOXHA[1], Marsela BIQIKU[1]

[1] Department of Pediatrics, Pediatric Intensive Care Unit, University Hospital Center "Mother Teresa",Tirana, Albania
[2] Department of Radiology, University Hospital Center "Mother Teresa", Tirana, Albania

Received 16th March 2026, Accepted 1st June 2026
https://doi.org/10.31688/ABMU.2026.61.2.21

Abstract

Introduction. Air-filled intrathoracic cystic lesions in neonates are uncommon and may mimic surgical emergencies such as congenital diaphragmatic hernia (CDH). An accurate differentiation between these entities is essential to avoid unnecessary surgical intervention.

Case presentation. We report the case of a term male neonate who developed severe respiratory distress on the second day of life and underwent radiologic evaluation including chest radiography and computed tomography. The initial chest radiography demonstrated a left retrocardiac air collection suspicious for CDH. The thoracic computed tomography revealed a multilocular air-filled cystic lesion in the left hemithorax, with diffuse ground-glass opacities, and a small pneumothorax, without diaphragmatic discontinuity or herniation of abdominal organs. The neonate was managed conservatively and showed progressive clinical improvement. The follow-up CT performed four weeks later demonstrated complete resolution of the lesion.

Résumé

Kyste pulmonaire néonatal transitoire rempli d'air simulant une hernie diaphragmatique congénitale: présentation de cas

Introduction. Les lésions kystiques intrathoraciques remplies d'air chez les nouveau-nés sont rares et peuvent imiter des urgences chirurgicales telles que la hernie diaphragmatique congénitale. Une différenciation précise entre ces entités est essentielle afin d'éviter une intervention chirurgicale inutile.

Rapport du cas. Nous rapportons le cas d'un nouveau-né de sexe masculin né à terme qui a développé une détresse respiratoire sévère au deuxième jour de vie et qui a bénéficié d'une évaluation radiologique comprenant une radiographie thoracique et une tomodensitométrie. La radiographie thoracique initiale a montré une collection d'air rétrocardiaque gauche suspecte de hernie diaphragmatique congénitale. La tomodensitométrie thoracique a révélé une lésion kystique multiloculaire remplie d'air dans l'hémithorax gauche, associée à des opacités diffuses en verre dépoli

✉ Address for correspondence: Ermela CELAJ
Department of Pediatrics, PICU, University Hospital Center "Mother Teresa", Tirana, Albania
Address: Rruga e Dibrës, 372, Tirana, Albania
Email: celajermela@gmail.com; Phone: +355672054720

Conclusions. Transient pulmonary cysts may closely mimic congenital diaphragmatic hernia in neonates. Careful clinical evaluation combined with appropriate imaging is crucial for establishing the correct diagnosis and avoiding unnecessary surgical intervention.

Keywords: pulmonary cyst, congenital, diaphragmatic hernia.

List of abbreviations:
CT – computed tomography

et à un petit pneumothorax gauche, sans discontinuité diaphragmatique ni herniation d'organes abdominaux. Le nouveau-né a été traité de manière conservatrice avec une amélioration clinique progressive. Une tomodensitométrie de contrôle réalisée quatre semaines plus tard a confirmé la résolution complète de la lésion.
Conclusions. Les kystes pulmonaires transitoires remplis d'air peuvent imiter étroitement une hernie diaphragmatique congénitale chez les nouveau-nés. Une corrélation attentive entre l'évaluation clinique et l'imagerie est essentielle pour établir le diagnostic correct et éviter une intervention chirurgicale inutile.

Mots-clés: kyste pulmonaire, hernie diaphragmatique, congénitale.

Introduction

Intrathoracic cystic air-containing lesions in neonates are uncommon findings, but they may have significant clinical implications, particularly when associated with early-onset respiratory distress. These lesions require a careful differential diagnosis, because they may represent a wide spectrum of congenital anomalies, including congenital pulmonary airway malformation, bronchopulmonary sequestration, congenital lobar emphysema, bronchogenic cysts, or congenital diaphragmatic hernia[1]. Because these entities may demonstrate similar features on chest radiography, establishing an accurate diagnosis is essential for appropriate management. We present the case of a term neonate with an air-filled thoracic cyst, that was initially suspected to be a congenital diaphragmatic hernia, but subsequently demonstrated spontaneous resolution. This case highlights the critical role of appropriate imaging and careful clinical assessment in differentiating transient pulmonary conditions from true surgical pathologies.

Case presentation

A term male neonate, with a birth weight of 3600 g, developed severe respiratory distress on the second day of life, requiring urgent endotracheal intubation and pressure-controlled mechanical ventilation. The initial chest radiography demonstrated a left-sided retrocardiac air collection suggestive of congenital diaphragmatic hernia (Figure 1). In view of the possible surgical nature of the condition, the infant was referred to our tertiary neonatal surgical center for further assessment. Upon admission, the patient remained mechanically ventilated, but hemodynamically stable. Bilateral breath sounds were present and symmetric on auscultation. Given the diagnostic uncertainty, thoracic computed tomography (CT) was performed. CT imaging demonstrated a multilocular air-filled cystic lesion in the left hemithorax, associated with diffuse ground-glass opacities (Figure 2). A small pneumothorax was also noted on the left side (Figure 3). The diaphragm appeared intact, and no herniation of abdominal viscera was identified.

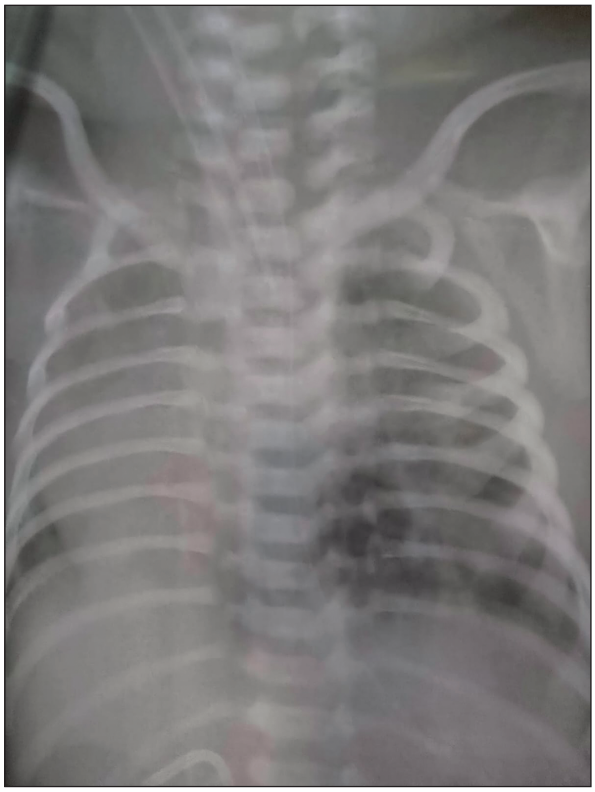


Figure 1. Chest X-ray.
Frontal chest radiography demonstrating left retrocardiac air lucencies suspicious for congenital diaphragmatic hernia.

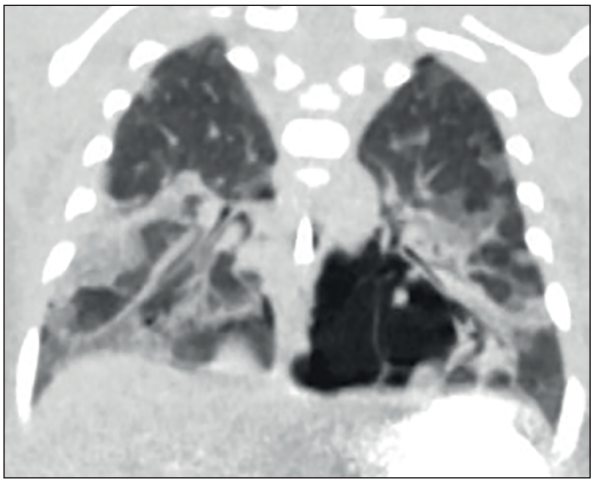


Figure 2. Pulmonary CT scan.
Coronal and axial CT images (lung window) showing a multilocular retrocardiac air-containing lesion in the left hemithorax associated with diffuse ground-glass opacities.

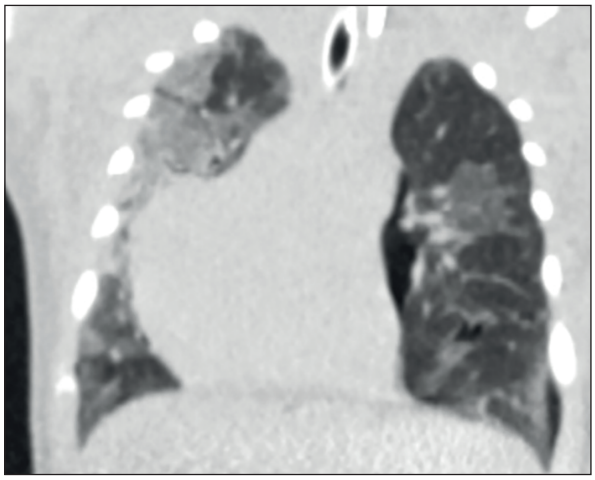


Figure 3. Pulmonary CT scan demonstrating an additional small pneumothorax in the left hemithorax.

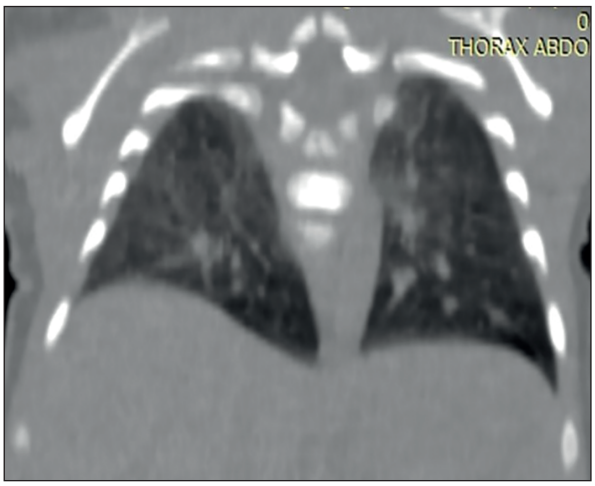


Figure 4. Pulmonary CT scan.
Follow-up CT scan obtained four weeks later showing complete resolution of the previously described lesion.

Given the stable radiologic findings and the absence of clinical deterioration, a conservative management strategy was implemented, including continued respiratory support, careful adjustment of ventilatory parameters to minimize barotrauma, and close clinical monitoring. The neonate demonstrated progressive respiratory improvement over the following days. Following clinical stabilization, he was transitioned to non-invasive ventilatory support and later successfully extubated after establishing adequate spontaneous respiration.

The neonate was discharged in a stable clinical condition on day 13 of life. A follow-up CT scan performed four weeks later demonstrated the complete resolution of the previously described cystic lesion, with normalization of the pulmonary parenchyma (Figure 4).

Discussion

Cystic pulmonary lesions in neonates are uncommon and may pose significant diagnostic challenges due to overlapping radiologic features with other congenital lungabnormalities[2]. The spectrum of conditions included in the differential diagnosis is broad and encompasses entities such as congenital pulmonary airway malformation, bronchopulmonary sequestration, congenital lobar emphysema, bronchogenic cysts, and congenital diaphragmatic hernia[1,2].

In the acute setting, evaluation typically begins with clinical assessment and plain chest radiography; however, conventional X-rays may lack sufficient specificity to establish a definitive diagnosis[3]. When radiographic findings are equivocal, cross-sectional imaging, particularly CT scans, provides detailed anatomical delineation, enabling accurate assessment of diaphragmatic integrity and localization of the lesion within the pulmonary parenchyma[4].

Transient air-filled pulmonary cysts represent a rare but important diagnostic consideration in mechanically ventilated neonates. These lesions are believed to be the result of alveolar overdistension, localized air trapping, or temporary maladaptation of the neonatal lung. Elevated airway pressures during mechanical ventilation may facilitate the formation of pneumatoceles or cyst-like air collections. In most cases, these abnormalities are self-limiting and demonstrate spontaneous regression as ventilatory parameters are optimized and pulmonary compliance improves[2,5].

The case presented illustrates the diagnostic complexity associated with intrathoracic air-containing

lesions in neonates presenting with severe respiratory distress. The initial imaging appearance was highly suggestive of a congenital diaphragmatic hernia, a condition that requires prompt recognition because of its potential severity[6,7]. Nevertheless, discrepancies between clinical findings and imaging characteristics warranted further investigation.

CT examination was decisive, confirming diaphragmatic continuity, excluding herniation of abdominal viscera, and establishing the intrapulmonary nature of the lesion[1]. The favorable clinical course and complete imaging resolution observed during follow-up supported the diagnosis of a transient pulmonary cyst rather than a structural congenital malformation.

Surgical resection is not routinely indicated in such cases and should be considered only when lesions persist, cause progressive respiratory compromise, exert significant mass effect, become infected, or raise concern of an underlying congenital anomaly such as congenital pulmonary airway malformation[1]. Similar cases have been reported in the literature[8]. Their findings further underscore the importance of a cautious and methodical diagnostic approach to avoid unnecessary operative intervention.

Conclusions

Transient neonatal air-filled pulmonary cysts may mimic congenital diaphragmatic hernia on initial imaging. Careful correlation between clinical findings and advanced imaging, particularly CT, is essential to establish the correct diagnosis. Once diaphragmatic hernia is excluded and the infant is clinically stable, conservative management with close monitoring usually leads to spontaneous resolution and avoids unnecessary surgical intervention.

Author Contributions:

E.C., M.T., I.K., E.K., I.GJ., D.S., V.H., and M.B. were responsible for the diagnostic procedures, clinical diagnosis, and treatment decisions. E.C., M.T., I.K. and E.K. wrote the manuscript. All authors have read and agreed to the published version of the manuscript.

Compliance with Ethics Requirements:

"The authors declare no conflict of interest regarding this article"

"The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from the patient's parents"

"No funding for this study"

Acknowledgements:

None

References

1. Skarsgard ED. Cystic lung lesions. In: Stevenson DK, Cohen RS, Sunshine P, eds. Neonatology: Clinical Practice and Procedures. McGraw-Hill Education; 2015.
2. Birru F, Hicks A, Mandziuk J, Bratu I. Pneumatoceles or not? Case reports on pulmonary cystic lesions in infants. *Pediatr Dev Pathol.* 2025;28(5):400–405.
3. Barman S, Mandal KC, Kumar R, Biswas SK, Mukhopadhyay M, Mukhopadhyay B. Congenital cystic lesions of lung in the pediatric population: a 5-year single institutional study with review of the literature. *Afr J Paediatr Surg.* 2015;12(1):66–70.
4. Jones J, Bell D, Glick Y, et al. Cystic lung lesions (pediatric). *Radiopaedia.org.* 2022.
5. MSD Manual Professional Version. Pulmonary air leak syndromes. https://www.msdmanuals.com/professional/pediatrics/respiratory-problems-in-neonates/pulmonary-air-leak-syndromes (Accessed on September 2025)
6. Skinner SC. Congenital diaphragmatic hernia. In: Coppola CP, Kennedy AP Jr, Lessin MS, Scorpio RJ, eds. Pediatric Surgery. Springer; 2022.
7. Chandrasekharan PK, Rawat M, Madappa R, Rothstein DH, Lakshminrusimha S. Congenital diaphragmatic hernia: a review. *Matern Health Neonatol Perinatol.* 2017;3:6.
8. Colthorpe A, Emmerson A, Kamupira S, Lansdale N, Tanney K. Intra-thoracic lesions mimicking congenital diaphragmatic hernia. *Infant.* 2021;17(6):245–246.