Case Report

Supra-Cardiac Bronchogenic Cyst Masquerading as lower respiratory tract infection in a Young Infant: A Case Report

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ABSTRACT

Bronchogenic cysts are rare congenital malformations of the foregut that may present with nonspecific respiratory symptoms, often leading to misdiagnosis. We report a case of a 4-month-old boy with recurrent episodes of cough, fever, and respiratory distress, initially managed as bronchopneumonia during previous hospitalizations. Despite partial clinical improvement, the child developed oxygen dependency and intermittent stridor during weaning attempts. Radiological evaluation revealed left lung hyperinflation with a mediastinal shift, raising suspicion of an underlying mass. Point-of-care ultrasound identified a cystic lesion above the left atrium, which was further characterized by computed tomography (CT) as a well-defined mediastinal cyst compressing the tracheobronchial tree. The patient underwent successful surgical excision through thoracotomy. Histopathological examination confirmed the diagnosis of bronchogenic cyst. The postoperative recovery was uneventful. This case highlights the importance of maintaining a high index of suspicion for congenital cystic lesions in infants with recurrent or atypical respiratory symptoms. Early use of bedside ultrasound and advanced imaging can facilitate prompt diagnosis and management, preventing complications associated with airway compression.

Key words: Mediastinal Cysts, Infant, Respiratory Distress

Bronchogenic cysts, first described in 1859, are rare congenital cystic malformations of the respiratory tract resulting from abnormal foregut development, with a prevalence of 1 in 42,000–68, 000 live births [1, 2]. They arise from aberrant budding of the tracheobronchial tree between the 26th and 40th weeks of gestation [3]. They are usually located in the pulmonary and mediastinal areas and rarely in the abdomen and skin [4]. The cyst location depends on its embryological growth, with the central cyst developing earlier in development, whereas the peripheral location suggests later development. Approximately 85% are in the mediastinum, while 12% originate from the parenchyma, mainly the lower lobes [5].

They are often asymptomatic for a prolonged period, particularly when small and non-compressive. However, bronchogenic cysts can present with clinical manifestations of various respiratory conditions, depending on their size and anatomical location. Due to the rarity of the condition and its nonspecific presentation, diagnosis is frequently missed, especially in infants and young children. The common symptoms include persistent or recurrent cough, chest infection, chest pain, increased stridors during sleep and difficulty swallowing. Imaging modalities play a crucial role in identifying these lesions, with computed tomography (CT) and magnetic resonance imaging (MRI) providing detailed anatomical characterizations [6].

Surgery is the first line of treatment, but other modalities, such as percutaneous aspiration with sclerotherapy, are used for large cysts with extensive adhesions. Here, we present a rare case of a bronchogenic cyst situated just above the left atrium in a 4-month-old boy, who was previously admitted twice and misdiagnosed with pneumonia. Due to persistent oxygen dependency and soft stridor during sleep, we considered other diagnoses, and it was determined that a bronchogenic cyst was causing the pressure symptoms. The case highlights the importance of considering congenital anomalies in infants with atypical or recurrent respiratory presentations.

CASE PRESENTATION

A 4-month-old boy was admitted with a history of fever, cough, and breathing difficulty for seven days. The child was born to a primigravida mother at term gestation by vaginal

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delivery with a birth weight of 2.7 kg. The antenatal and postnatal periods were uneventful. The child was exclusively breastfed and thriving well. He had also been admitted to other hospitals for complaints of cough and fast breathing at 2.5 and 3 months of age. The first episode of cough, fast breathing, and fever was treated as pneumonia, and the baby received antibiotics for seven days, after which the symptoms improved. Similar complaints appeared over the next week with an inconclusive history of fever, for which he received nebulization and antibiotics. This was the third episode of similar symptoms encountered, for which he was admitted. The child was gaining weight adequately, and at the time of admission, his weight was 5.2 kg. At the time of admission, the child had a temperature of 101.30 °F, respiratory rate-68 of 68 per minute, pulse rate of 136/min, SpO2 of 97% on oxygen by nasal prongs at a rate of 2 L/min.

On systemic examination, the child had subcostal retraction with rhonchi and crepitus on the right side of the chest. Other systemic examinations were normal. The child was admitted to the pediatric intensive care unit (PICU) with a provisional diagnosis of pneumonia. He was started on intravenous antibiotics, oxygen support, and nebulization with bronchodilators. After 72 h, the child became afebrile, and tachypnea settled; however, when we tried to wean him off oxygen, he became irritable, oxygen saturation fell, and stridor was heard. On re-examination, the child showed reduced air entry on the left side of the chest with soft stridor. The chest radiograph was very puzzling to the treating team, showing significant left lung hyperinflation, right tracheal shift, and a lobular contour to the right superior mediastinum merging inferiorly with the right azygous line [Figure 1].

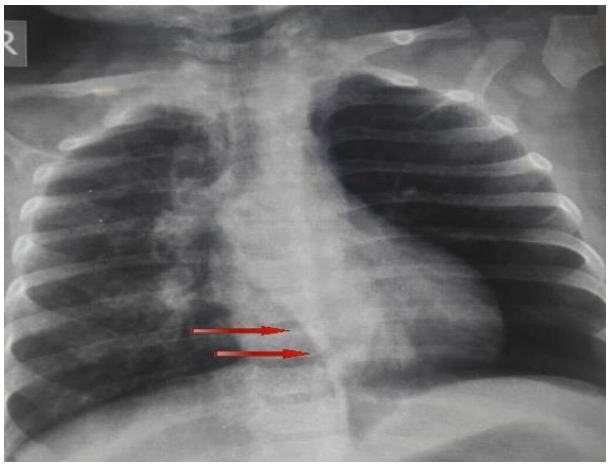

Figure 1. Chest x-ray PA view shows hyperinflated lungs and a lobular contour to the right superior mediastinum, which merges inferiorly with the azygous vein.

Given the atypical radiographic findings and recurrent clinical presentation, a point-of-care ultrasound (POCUS) of the chest was performed, which was suggestive of a cystic mass in the mediastinum above the left atrium [Figure 2].

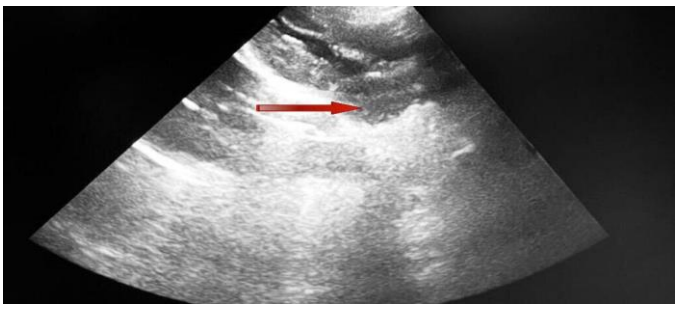

Figure 2. POCUS shows a cystic mass in the mediastinum as pointed with a red arrow.

To obtain further details and delineate the lesion, we planned a contrast-enhanced chest CT scan. The CT imaging demonstrated a well-defined, thin-walled cystic lesion (2.7×2.1×3.0 cm) in the middle mediastinum. The lesion was located anterior to the trachea, indenting the ascending aorta and arch, compressing the trachea and bronchi, and abutting the left atrial roof but away from the pulmonary veins, suggestive of a bronchogenic (foregut duplication) cyst.

The patient was urgently transferred to the pediatric surgery department after stabilization. Surgical excision of the cyst was performed via right thoracotomy. Intraoperatively, a well-encapsulated cystic mass was identified and completely excised without complications. Histopathological examination of the mass suggested a cyst lined by ciliated pseudostratified columnar epithelium with a fibromuscular wall containing cartilage and mucous glands, confirming the diagnosis of a bronchogenic cyst.

The postoperative course was uneventful. The infant showed significant clinical improvement, with resolution of respiratory distress and no further oxygen requirement. He was discharged in stable condition and remained asymptomatic on follow-up.

DISCUSSION

This case shows the importance of imaging for the diagnosis of lung lesions in cases of recurrent respiratory distress in infants, which can be congenital, like a bronchogenic cyst, or other causes.

Maier classified bronchogenic cysts into five groups according to their location: paratracheal cysts, carinal cysts, hilar cysts, paraesophageal cysts, and atypical cysts, which include diaphragmatic, abdominal, cutaneous, subcutaneous, and supraclavicular cysts [7]. Patients with mediastinal bronchogenic cysts usually remain asymptomatic but may present with recurrent episodes of shortness of breath, cough, wheezing, dysphagia, and recurrent chest infections [8]. In contrast, subcutaneous bronchogenic cysts are usually asymptomatic and nodular, with the entire cyst adherent to the body [8]. Yehouenou Tessi RT et al. (2021) reported a similar case in a 5-year-old child who had been treated for recurrent

lung infection [9].

The primary diagnostic techniques employed are radiological investigations, including X-ray, ultrasound, CT, and MRI. Additionally, invasive diagnostic techniques, such as fine-needle aspiration and excisional tissue biopsy, are available and are considered more accurate. CT and MRI provide precise information on the location, shape, and consistency of cysts. CT scans typically show homogeneous, water-density lesions, whereas MRI findings vary based on the cyst contents; fluid shows bright intensity on T2-weighted images and variable intensity on T1-weighted images [6]. Histopathological examination reveals that bronchogenic cysts are lined with pseudostratified columnar cells with cilia [10].

Surgical excision is the treatment of choice to prevent complications, including infections and potential malignant transformation. Minimally invasive approaches, such as video-assisted thoracoscopic surgery (VATS) or mediastinoscopy, are preferred. Patients who undergo complete resection have good outcomes with no long-term complications [11]. In cases where surgery is difficult due to cyst size or adhesions, percutaneous aspiration followed by sclerotherapy using agents such as ethanol or bleomycin may be considered an alternative treatment [12].

CONCLUSION

This case suggests that cystic lung disease should be considered in infants with recurrent episodes of respiratory distress and a history of recurrent hospitalization with or without signs of lung infection. Proper history, examination, and imaging techniques like POCUS are important for the diagnosis of such conditions. Although surgical excision remains the primary treatment, percutaneous aspiration with sclerotherapy is a viable alternative.

REFERENCES

1. Limaïem F, Ayadi-Kaddour A, Djilani H, Kilani T, El Mezni F. Pulmonary and mediastinal bronchogenic cysts: a clinicopathologic study of 33 cases. Lung. 2008;186(1):55–61.
2. Reichelt O, Grieser T, Wunderlich H, Möller A, Schubert J. Bronchogenic cyst: a rare differential diagnosis of retroperitoneal tumors. Urol Int. 2000;64(4):216–219.
3. McAdams HP, Kirejczyk WM, Rosado-de-Christenson ML, Matsumoto S. Bronchogenic cyst: imaging features with clinical and histopathologic correlation. Radiology. 2000;217(2):441–6.
4. Alradhi AY, Al-Shamarni A, Yousef A. A 4-month-old girl with persistent respiratory distress and multiple admissions to the pediatric intensive care unit due to a congenital bronchogenic cyst. Am J Case Rep. 2022;23:e935247.
5. Abushahin A, Zarroug A, Wagdi M, Janahi I. Bronchogenic cyst as an unusual cause of a persistent cough and wheeze in children: a case report and literature review. Case Rep Pediatr. 2018;2018:9590829.
6. Gu X, Zhu L, Li Y, Yin B, Wang Z. Imaging findings and misdiagnosis of bronchogenic cysts: a study of 83 cases. J Belg Soc Radiol. 2023;107(1):81.
7. Gaikwad P, Muthusami JC, Raj JP, Rajinikanth J, John GM. Subcutaneous bronchogenic cyst. Otolaryngol Head Neck Surg. 2006;135(6):951–952.
8. Cohn JE, Rethy K, Prasad R, Pascasio JM, Annunzio K, Zwillenberg S. Pediatric bronchogenic cysts: a case series of six patients highlighting diagnosis and management. J Invest Surg. 2020;33(6):568–573.
9. Yehouenou Tessi RT, El Haddad S, Oze KR, Allali N, Chat L. Lung bronchogenic cyst in children. Int J Case Rep Images. 2021;12:101266Z01RT2021.
10. Fievet L, D'Journo XB, Guys JM, Thomas PA, De Lagausie P. Bronchogenic cyst: best time for surgery? Ann Thorac Surg. 2012;94(5):1695–9.
11. Vy TT, Bang HT, Trong VD, Tan NM, Cuong LT. Percutaneous aspiration and absolute ethanol sclerotherapy in the treatment of symptomatic bronchogenic cyst. Radiol Case Rep. 2023;18(5):1844–1847.
12. Shin JS, Kim YS. Percutaneous sclerotherapy for mediastinal cyst resulting in dyspnea due to tracheal compression in an elderly patient: a case report. Radiol Case Rep. 2020;15(9):1428–1432.

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