Case Report

Bronchogenic Cyst in a 13-month-Old Child

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Abstract

Introduction: Persistent cough, stridor, and respiratory distress are the most common symptoms encountered by paediatricians in their daily practices. Although the bronchogenic cyst is a rare cause of respiratory distress, persistent cough, and stridor in infants but should always be kept in the differential diagnosis of respiratory symptoms not responding to antibiotics and bronchodilators.

Case presentation: A 13-month-old child baby had a history of frequent visits to the hospital being treated as a case of pneumonia and hyper-reactive airway disease. Chest X-ray revealed a cystic mass in the right middle mediastinum CT-scan chest confirmed a bronchogenic cyst for which the child underwent surgical excision. The patient was free of any respiratory signs and symptoms postoperatively.

Conclusion: The case is being reported to create awareness related to bronchogenic cyst as a cause of persistent cough and respiratory distress.

Keywords: Bronchogenic cyst, mediastinal mass, thoracotomy.

Introduction

A Bronchogenic cyst is a rare congenital malformation of the foregut arising from ectopic budding of primitive tracheobronchial tree in the fetal period. Histologically it is lined with ciliated respiratory epithelium.[1,2] It is mostly unilocular containing clear fluids. The incidence rate is 1 in 42000 to 68000.[3] These benign lesions are included in tumors called choristomas or heterotropic cyst or foregut duplication cyst.[4] Most of them are intrathoracic in origin arising from the mediastinum. The bronchogenic cyst may remain asymptomatic or present with stridor in neonates and compressive symptoms in infants.[1] Most clinicians prefer surgical excision of bronchogenic cyst even in asymptomatic period because it can lead to life-threatening complications owing to local compression.[5]

Case Presentation

A 13-month-old child was referred to our hospital with complaints of persistent cough and stridor. He had a history of recurrent episodes of respiratory distress for the last 1 year. The child had been admitted several times as a case of pneumonia and hyper-reactive airway disease but no improvement was noticed despite the long course of antibiotics, inhaled bronchodilators, and steroids prescribed by a primary physician. There was no significant history of foreign body inhalation, feeding, and swallowing difficulty. No significant history of atopy, immunodeficiency, or asthma in the family. The patient was born at term with an uneventful prenatal, natal, and postnatal period. My family history of tuberculosis was unremarkable. There was no history of contact with pets, stuffy toys, or allergy to powder and perfumes. He was vaccinated according to the EPI schedule appropriate for the age of the child.

On examination, a 13-month-old cyanosed child had respiratory distress, stridor, and engorged neck veins but no obvious dysmorphism was noted. Vitals included respiratory rate 80/minute (tachypnea), afebrile, and pulse rate 100/minute. Anthropometric measurements were appropriate for age and gender. BCG scar was present and lymph nodes were not palpable. Chest examination revealed lower chest in drawing, decreased air entry on the right side with occasional crepitation but no hepatosplenomegaly noted. The rest of the physical examination was unremarkable.

Complete Blood Picture showed lymphocytosis suggestive of viral infection Covid-19. PCR was negative. C reactive protein, immunology profile (IgG, IgA, IgE) and delta CFTR 508 mutational study for Cystic Fibrosis were normal. Gastric aspirates were negative for Acid fast bacilli. Chest X-ray revealed a soft cystic lesion opacity measuring 8 x 7 cm on the right side of the chest in the middle mediastinum that was lobulated with no calcification present. Bilateral cardiophrenic and costophrenic angles were clear as shown in Figure 1. Based on the cystic nature of the lesion other differential diagnoses of oesophageal duplication cyst, anterior meningocele, ganglioneuroma, and blastoma should be safely ruled out.

This mass was further delineated by a CT scan that showed a large right-sided bronchogenic cyst in the posterior and middle mediastinum extending from T1 to T7 compressing the trachea and displacing the carina anteriorly. The mass was abutting the aortic arch, descending aorta, right pulmonary artery, and superior vena cava. It was also displacing mediastinal structures anterolaterally as shown in Figure 2. Posteriorly it was reaching paravertebral space.

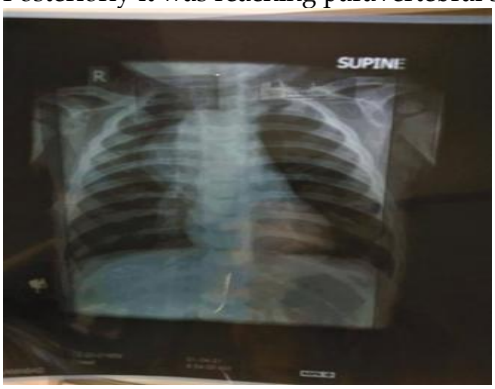

Figure 1: X-ray showing smooth rounded lesion in the right middle and posterior mediastinum suggestive of cystic mass

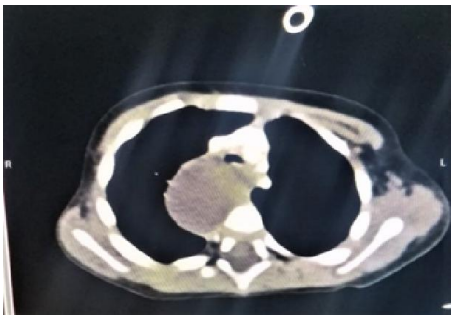

Figure 2: CT scan chest showing cystic bronchogenic leison in middle and posterior mediastinum involving paratracheal area compressing the trachea and causing obstructive symptoms

Thoracotomy and mediastinal mass excision was done. Findings noted were 5×*7 cm cyst compressing oesophagus but separable, tightly adherent to the trachea, and communicating with a right main bronchus. The cyst wall was sent for histopathology and cystic fluid for routine examination. Postoperatively the patient was managed with IV antibiotics. He remained stable with no active complaints and was discharged after 2 days on oral analgesics and antibiotics. The patient was brought for follow-up after a week having no respiratory symptoms or postoperative complications.

Discussion

A Bronchogenic cyst is a rare embryonic cystic malformation of the primitive foregut located most commonly in the mediastinum or lungs.[6] Here we report a paratracheal bronchogenic cyst located in the right middle mediastinum. Bronchogenic cyst in neonates presents with respiratory distress and stridor while infants suffer from coughing and wheezing due to compressive effects. One-third of cases remain asymptomatic.[1]

In our report, the child presented with a persistent cough, stridor, and respiratory distress at 13 months of age. Although stridor and persistent cough are common symptoms in the paediatric population but bronchogenic cyst presenting with such symptoms is a rare entity. Imaging studies including X-rays may reveal hyperinflations, pulmonary infiltrates, or no findings at all[1] but in our case, we found round smooth cystic lesion in the right middle and posterior mediastinum. This highlights the importance of chest X-rays to rule out bronchogenic cyst particularly when a patient is not improving despite conservative management including antibiotics and bronchodilators. CT scan chest more sensitive imaging revealed bronchogenic cyst encircling trachea and extending into the posterior mediastinum. Bronchogenic cyst whether symptomatic or asymptomatic requires surgical excision with very few chances of recurrence noted.[5]

Conclusion

This case report highlights bronchogenic cyst as a rare but treatable cause of respiratory distress, persistent cough, and stridor presenting mostly as a mediastinal or pulmonary cystic lesion. Therefore it should always be kept in the differential diagnosis of recurrent respiratory symptoms in children. Surgical excision is the definitive treatment with very rare chances of recurrence.

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