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## Rare presentation of bronchogenic cyst: A case report

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### Abstract

**Introduction:** Bronchogenic cyst is an accidentally detected mediastinal mass which is usually asymptomatic in most of the cases. The bronchogenic cyst appears to be a well-defined, nonenhancing cystic mass with peripheral calcification and presence of milk of calcium in some cases. It may be said congenital if it detected in very early age group. Case Report: A case of congenital bronchogenic cyst was incidentally detected by computed tomography scan in a 2 month-old female child presenting with abdominal distension and refusal to feed.

**Conclusion:** The case is reported here to give an emphasis on its formation, rare presentation and mode of treatment accordingly due to its so hazardous position in the mediastinum.

**Keywords:** Bronchogenic cyst, mediastinal mass

### 1. Introduction

Bronchogenic cysts result from the abnormal or late budding of the ventral lung bud or the tracheobronchial tree during the process of the development. Most of the bronchial branches are formed within the 15th week of development in fetal life, but they continue to divide and completed in eighth year. Bronchogenic cysts can be detected in fetus or in stillbirths and it is well recognized in babies or infants. But mediastinal type bronchogenic cysts could not be clinically detected usually until adult life [1]. Bronchogenic cysts accounts for 10–15% of all primary mediastinal masses, and can be classified as either intrapulmonary or mediastinal. Overall, 72% of bronchogenic cysts produce some symptoms, but 90% of mediastinal type bronchogenic cysts are reported to be asymptomatic. Mediastinal type bronchogenic cysts are classified into five types: paratracheal, carinal, hilar, paraesophageal, or miscellaneous [2]. The paratracheal or carinal types can produce symptoms such as dyspnea or chest pain, due to compression of the trachea or bronchi. A giant carinal type of mediastinal type bronchogenic cysts can compress the left atrium of heart due to its proximity to the heart. The cyst is lined by the ciliated, secretory respiratory epithelium with cartilage, smooth muscle, fibrous tissue and mucous glands. The bronchogenic cyst may be filled with fluid or air or both according to the communication with the tracheobronchial tree [3]. The cysts are usually asymptomatic or it may produce pressure symptoms to the surrounding structures. The patient might complain of heaviness in chest especially on exertion and the electrocardiogram can reveal left atrial overload [1]. The echocardiography and computed tomographic (CT) scan can find out the exact cause of the atrial overload. The most common radiological position is in the subcarinal region but it can affect any compartment of the mediastinum or even within the lung. On CT, the cysts are well-defined, rounded, nonenhancing masses. The CT appearance of the fluid can vary from water density to higher density according to secretion type. Some bronchogenic cysts may have flecks of calcium within the fluid, the so-called milk of calcium. Magnetic resonance imaging (MRI) appearance may vary according to the nature of the fluid of the cyst, low (grey to black) or high (white to grey) signal intensity in T1-weighted imaging, and bright (white) signal intensity in T2-weighted imaging. In T1-weighted images, fat, proteinaceous and hemorrhagic fluids appear in white; and water appears in low signal intensity. In T2-weighted images water, with or without proteins, appears in high signal intensity [4].

## 2. Case Report

A two month -old female child was presented with abdominal distension since 2days, refusal to feed and excessive crying.

Birth h/o – term, vaginal delivery, cried immediately, 4.1kg. no h/o nicu admission

o/e air entry decreased on right side of chest, sub costal, intercostal retractions, nasal flaring was present, abdomen was distended with AG=39cm.

Chest X-ray showed a mediastinal heterogeneity. Electrogram and echocardiography were within normal limits. Ultrasonography revealed dilated bowel like structure in right hypochondrium posterior and superior to liver. The CT scan of thorax showed a well defined hypodense lesion measuring 4.4\*5.3\*5.3 cm in right hemithorax just above right hemi diaphragm with collapse of adjoining right lower lobe basal segments.

MRI scan shows a large well defined heterogenous lesion with smooth wall measuring 4.6\*5.4\*5.7 cm in right lower paraspinal region in supra diaphragmatic region s/o bronchogenic cyst.

Child was operated and the cyst was excised successfully and was discharged without any complications



## 3. Discussion

Bronchogenic cysts are the cystic malformations which are having the respiratory epithelial lining. As it is a space occupying lesion in the mediastinum, so the appearance of the symptoms of patients having the bronchogenic cysts depend on the position and most importantly the size of the tumor. As they are enlarge, they may produce symptoms by compression of the surrounding structures.

A few of the cysts might become infected and can rupture into the nearest bronchus causing mucopurulent sputum, hemoptysis and fever. Bronchogenic cysts are usually

asymptomatic in early lives. Bronchogenic cysts can be suspected in early childhood having noisy breathing, cough, dysphagia, anorexia and a prompt CT scan can conclude the diagnosis. When the diagnosis is made with the certainty of the bronchogenic cysts, it will become very important whether the cysts should be operated. Khalil *et al.* suggested surgical excision should be preferred because of its future complications but according to Mawatari *et al.* the treatment should depend on the size and location of the cyst and adherence with the surrounding structures [2, 5]. The small cyst, carinal in location and free from the surrounding structures could be operated as soon as it is diagnosed before creating complications. But the operation sometimes become complicated as there may adhesions with surrounding structures. So, the complete separation of the cyst from the surrounding structures becomes impossible. The remnant of the cyst can either flare up or can create problem later. So, conservative treatment should be preferred and excision of the cyst will be chosen when it is creating complications such as fistula formation, bronchial ulceration, bleeding or infection.

## 3. Conclusion

The bronchogenic cysts are rare mediastinal mass which are very much important in treatment point of view when it is diagnosed. There are a few cases of bronchogenic cysts have been reported till now. The case is reported herein that bronchogenic cysts should be suspected with rare presentations and should be given definitive treatment as soon as possible to avoid complications.

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