

Bronchogenic cyst: A case report

Aniruddha Sarkar, Narayan Pandit

ABSTRACT

Introduction: Bronchogenic cyst is an incidentally 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 bronchogenic cyst was incidentally detected by computed tomography scan in a 35-year-old male presenting with the heaviness in the chest. **Conclusion:** The case is reported here to give an emphasis on its formation and mode of treatment accordingly due to its so hazardous position in the mediastinum.

Keywords: Bronchogenic cyst, Mediastinal mass

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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, paraoesophageal, 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

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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].

CASE REPORT

A 35-year-old male patient was presented with sense of heaviness in chest and shortness of breath even at rest for past two years. He gave history of intermittent low grade fever, cough, right sided pain chest since his adolescence and was frequently treated with antibiotics. Chest X-ray showed a right sided mediastinal mass with ipsilateral peripheral pleural calcification in the mid/lower zone. Electrogram and echocardiography were within normal limits. The CT scan of thorax showed a right sided posterior mediastinal, unilocular, cystic mass lesion having diameter of 10.9x8 cm with a homogeneous, increased fluid attenuation value of +15 HU (Figure 1). On contrast study the cyst was thin-walled, nonenhancing except a small part of its right edge suggesting focal thickening of inflamed mediastinal pleura or compressed part of lung adjacent to the cyst (Figure 2). A fluid was found at its dependent part, both in supine and in prone position due to presence of a small amount of higher density fluid (Figure 1, Figure 2 and Figure 3). A focus of calcification was found in a part its periphery (Figure 3). Absence of air within the cyst proved that the cyst was noncommunicating. Right intermediate bronchus was partially compressed and slightly displaced by the mass (Figure 4). Associated ipsilateral periopheral pleural calcification was present. The CT guided aspiration revealed its content to be whitish, opalescent fluid with high protein, epithelial cells, amorphous calcium. Culture report was negative. Fibroptic bronchoscopy revealed mucosal thickening and mild narrowing of lumen of right intermediate bronchus due to extrinsic compression. Bronchoscopic biopsy specimen revealed inflammatory changes and no malignant cell was detected.

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

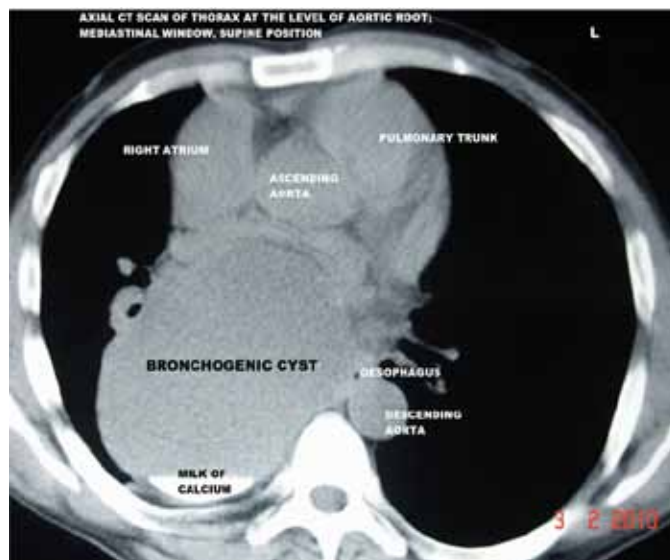


Figure 1: Axial computed tomography scan of thorax at the level of aortic root; mediastinal window, supine position.

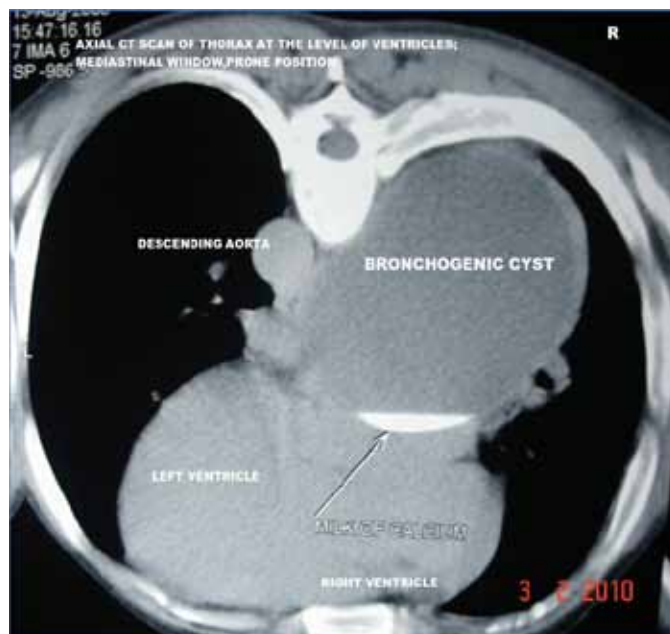


Figure 2: Axial computed tomography scan of thorax at the level of ventricles; mediastinal window, prone position.

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

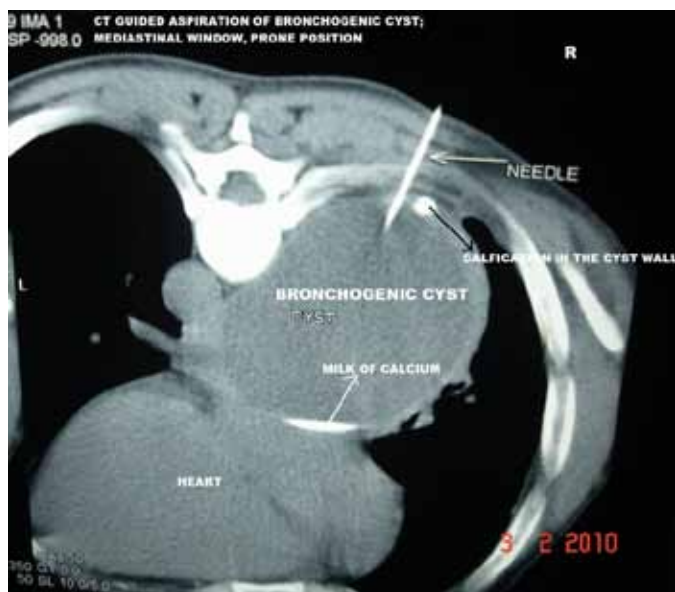


Figure 3: Computed tomography scan guided aspiration of bronchogenic cyst; needle in situ, mediastinal window, prone position.



Figure 4: Axial computed tomography scan of thorax at the level of carina; mediastinal window, prone position.

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.

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 presented herein with a hope that it will open new way of better treatment of such developmental mass having a knot of complications which is tightening with the delay of its removal.

Author Contributions

Aniruddha Sarkar – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Narayan Pandit – Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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