

# Unusually Large Mediastinal Bronchogenic Cyst: A Case Report

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## ABSTRACT

Bronchogenic cysts of the mediastinum are congenital cystic lesions that can occur in infants, children, and also adults. These are benign in nature and in many instances,

asymptomatic. The maximum size of a bronchogenic cyst of mediastinum found in literature is 15 cm. We present a case of a 21 cm large mediastinal bronchogenic cyst.

**Key Words:** Congenital cyst; Mediastinal cyst; Bronchogenic cyst

## INTRODUCTION

Bronchogenic cyst is a congenital cystic lesion of the mediastinum. It usually arises from the middle mediastinum and is believed to be a result of abnormal ventral foregut development in the mediastinum. These cysts are usually asymptomatic when small, and are mostly found incidentally on radiography. Chest X-ray and CT scan chest are the common modalities used for preoperative diagnosis, but definitive diagnosis is established only after histopathology of the excised cyst. Since a confident preoperative diagnosis is not always possible and because surgical complications may be more common in symptomatic patients, thus, surgical resection of all suspected bronchogenic cysts in operable candidates is recommended [1]. In literature, the size of these cysts range from 2 cm to 15 cm [2]. We are reporting a case of bronchogenic cyst of 21 cm in size excised from the mediastinum of a 60-year-old male, which, according to our literature review, is possibly the largest bronchogenic cyst ever excised and recorded.

## CASE REPORT

A 60-year-old male presented with complaints of shortness of breath on exertion for 2 months. The patient denied cough, chest pain or other symptoms. He had no known comorbidities and no history of weight loss or smoking. On examination, he was a pale, thin and lean male and was afebrile. His blood pressure was 130/80 mmHg, pulse 75 bpm and respiratory rate 22 breaths per minute. On chest examination,

trachea was central, right side of the chest was bulging with reduced chest expansion and percussion note was dull in the right middle and lower chest. Air entry was absent in the right middle and lower chest. Rest of the systemic examination was normal.

Chest X-ray showed a homogenous opacity in the right middle and lower zones. CT scan demonstrated a large (19 cm x 14 cm) thick walled cyst, present in right hemithorax, compressing the diaphragm and liver inferiorly, displacing the mediastinum to the contralateral side and compressing the lung ipsilaterally (Figure 1).

A right posterolateral thoracotomy and resection of the cystic mass was performed. Intraoperatively, a large tense cystic mass was seen arising from the mediastinum with thick walls, containing approximately 3000ml of fluid. It was adherent to the diaphragm, lung, pericardium and superior vena cava. The patient's post-operative recovery was uneventful and he was discharged from the hospital on the 12th post-operative day. Histopathology report showed a cyst lined by predominantly respiratory type lining with foci of stratified squamous epithelium. The cyst wall showed mature cartilage, smooth muscle, fibro-adipose tissue, cholesterol clefts and mild non-specific inflammation. There was no evidence of malignancy. The histopathology findings were suggestive of a bronchogenic cyst.

## DISCUSSION

Bronchogenic cysts account for 6% to 15% of

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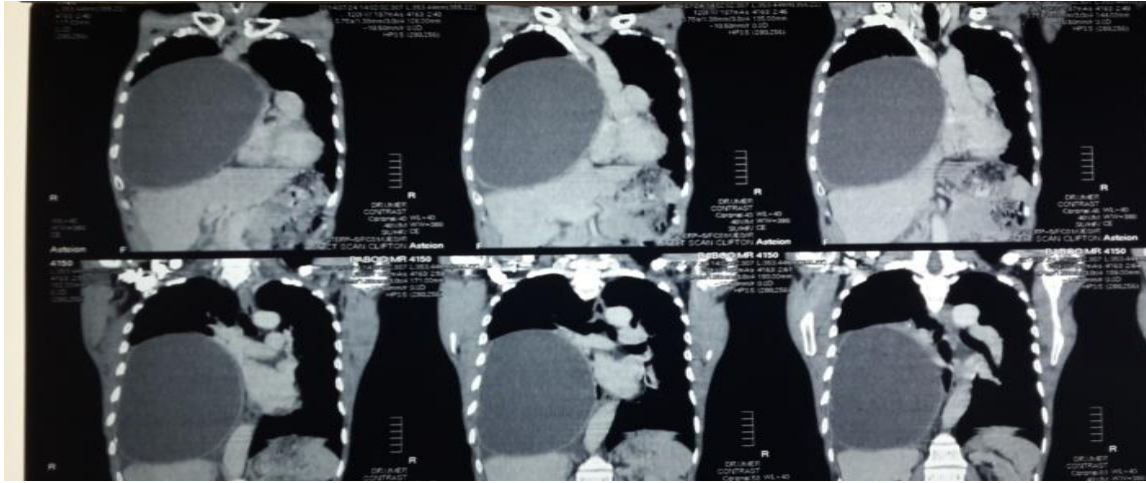
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**Figure 1:** Pre-operative CT scan chest shows thick-walled cyst arising from the mediastinum and measuring 19 cm x 14 cm



primary mediastinal masses and usually arise from the middle mediastinum [2]. These cysts form as a result of abnormal budding of the bronchial tree during embryogenesis (between 4th to 6th weeks), and are lined by secretory respiratory epithelium (cuboid or columnar ciliated epithelium) [3]. The wall is made up of tissues similar to that of the normal bronchial tree, including cartilage, elastic tissues, mucous glands and smooth muscle [3].

The initial presentation in most adults is asymptomatic but patients may develop symptoms over time. The most common symptoms are cough and pain which are due to compression of the mediastinal structures, infections or hemorrhage within the cyst [1]. The chest X-ray is usually the initial radiological investigation of choice. Classically, the chest radiograph reveals a rounded, well-demarcated, non-calcified mass with a homogenous "water density". CT scan usually shows well-circumscribed spherical or ovoid masses of variable attenuation, majority of which are of fluid density. In this case, it was a well-circumscribed cyst of fluid density (Figure 1). Surgical excision is usually through a posterolateral thoracotomy or median sternotomy.

According to literature, the size of bronchogenic cysts excised at surgery ranges from 2 cm to 15 cm [1-2][4-5]. In this case, the cyst was unusually large with a post-excisional diameter of 21 cm (Figure 2). Pre-operative CT scan chest had reported that the cyst measured 19 cm x 14 cm, but after surgical excision the size of the cyst was measured to be 21 cm x 14 cm. Although it is assumed that cysts have an exponential growth potential from neonatal period to adulthood [5], a

size of 21 cm is not found in literature and hence was an exceptionally large bronchogenic cyst to be removed. Soner Gursoy et al reported a 73-year-old male who was operated for a bronchogenic cyst [6], which according to our search is the oldest age at which such a cyst was removed.

## CONCLUSION

To the best of our knowledge, this is the largest bronchogenic cyst reported in literature. Bronchogenic cysts are usually small in size and are an incidental finding. When patients present with large cysts in the hemithorax, the differential diagnosis of bronchogenic cyst should always be included.

**Figure 2:** Intraoperative picture of the cyst excision. On table measurement of the cyst was 21 cm x 14 cm.



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