



## AN UNUSUAL CASE OF ANTERIOR MEDIASTINAL MASS

## General Surgery

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## ABSTRACT

A 55 year old male came with the chief complaints of shortness of breath, chest pain and cough since 6 months and had similar complaints 6 months back, diagnosed as right pleural effusion and ICD insertion was done. As symptoms are not relieved he was again investigated 4 months later and found to have left pleural effusion and ICD insertion was done. He had taken ATT for 9 months. He also underwent thoracoscopy. Then he underwent HRCT CHEST found to have ?loculated hydro pneumothorax with mediastinal cyst. Surgical treatment was planned as excision of cyst /mass and loculated hydro pneumothorax under general anaesthesia. Intra operative findings were Huge dumb-bell shaped cyst of 15\*20cms abutting anterior pericardium and Cyst was extending into mediastinal pleura and both sides of chest. Post operatively patient was stable and regularly followed up. mediastinal cyst were sent for histopathological examination and diagnosis was confirmed as bronchogenic cyst.

## KEYWORDS

Mediastinal mass, bronchogenic cyst (BC), Pericardium.

## INTRODUCTION -

Mediastinal masses are mostly congenital & they account for 20 to 30% of all primary masses. 1,2. Bronchogenic cyst is an embryonic foregut malformation arising from aberrant budding between the 3<sup>rd</sup> and 6<sup>th</sup> week of gestation. Bronchogenic cysts account for 50 to 60 % of mediastinal cysts. Bronchogenic cysts occur mostly along the tracheobronchial tree and usually found behind the carina. Mostly asymptomatic in nature.

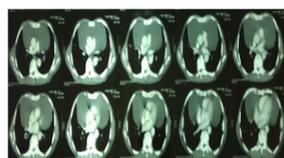
**CASE PRESENTATION** -- A 55 year old male from piduguralla, teacher by occupation came with the complaint of shortness of breath, left sided chest pain and cough for 6 months. He had a similar episode of shortness of breath, cough 6 months back, investigated as right sided pleural effusion and ICD insertion was done and started ATT. As symptoms are not relieved, he was again investigated and found to have left pleural effusion and ICD insertion was done and started ATT. He was referred to our hospital for recurrence of disease. At our hospital he was evaluated and found to have a large mediastinal cyst with bilateral intra thoracic extension. On examination he was found to have features of Marfan syndrome with kyphoscoliosis and dwarfism. He was having very few clinical signs like pectus carinatum, bilateral decreased breath sound in infraclavicular and mammary region.

**INVESTIGATIONS** Routine blood investigation were normal. X-ray chest pa view was showing a huge homogenous opacity extending from mediastinum to both sides middle and lower zones of chest compressing the lung fields. CT scan chest has shown a large lobulated cystic lesion in the anterior mediastinum partially encircling the mediastinal vascular structures and the cardia. No enhancing internal septations/solid areas.

CHEST X-RAY PA VIEW



HRCT CHEST



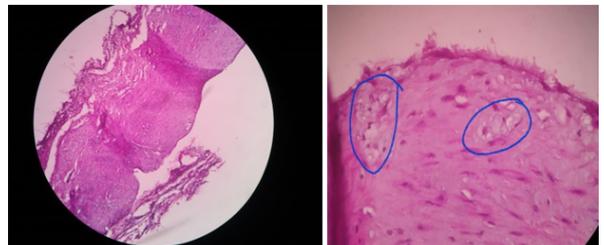
## SURGICAL PROCEDURE:

Excision of mass/cyst under General Anaesthesia with Endotracheal intubation was planned. Median sternotomy done with patient in supine position. Huge cyst covering the anterior pericardium superiorly until innominate vein, inferiorly until diaphragm was present. Laterally covering upper part of both lungs adherent to pleura and chest wall including left internal mammary artery and both the lungs (dumb bell shaped). All adhesions released from pericardium, pleura, vascular structures removed and cyst excised completely. Hemostasis achieved. Two intercostal drains kept in left and right pleura and one mediastinum drain kept in situ. Wound closed in layer wise.

Operative findings were huge dumb bell shaped cyst (15cm x 20cm) abutting anterior pericardium. Cyst was extending into mediastinal pleura and both sides intrathoracic and extrapleurally.



**HPE REPORT** Bronchogenic cyst exhibiting thick wall lined by ciliated columnar epithelium and wall showing chondromyxoid areas admixed with thick fibrocollagenous stroma and few chronic inflammatory cells. Outside surface of cyst wall showing congested blood vessels in loose areolar tissue and few aggregates of lymphoid vessels. Histological features are those of BRONCHOGENIC CYST.



## DISCUSSION:

- Bronchogenic cysts are congenital anomalies of lung development arising as a result of a group of cells that break off from the developing lung bud and differentiate on their own. When this abnormal budding occurs early during gestation, the cysts tend to be located within the mediastinum and rarely communicate with the bronchial tree. Cysts that arise later are more peripheral and are located within the lung parenchyma which often have a bronchial communication.
- LOCATION** - majority of the Bronchogenic cysts are in close anatomic relationship with the tracheobronchial tree or the esophagus in the visceral compartment of the mediastinum. Maier 4 divided their locations into five groups: paratracheal, carinal, hilar, paraesophageal, and miscellaneous. Within the chest, using the tracheobronchial bifurcation as a dividing line, about 25% of the cysts were located in the superior portion of the chest, whereas 75% were below the tracheal carina. One-third were in the middle mediastinum, whereas the other two-thirds extended to the limits of the posterior portion of the mediastinum. Miscellaneous group cyst is located in rare and exotic locations almost anywhere in the

body. It could arise from the parietal pleura. Related to the cardiovascular system, it has been found in the pericardial cavity, in the wall of aorta, in the right ventricular endocardium, in the left ventricle, in the interatrial septum. Outside the thorax, it could be found in front of the sternum, neck and in the abdomen. These cysts arise as abnormal budding of the primitive foregut that migrates into the abdomen before fusion of the pleuroperitoneal membranes. Usual location of bronchogenic cyst is in middle mediastinum but in our case it was found in **anterior mediastinum and was extending to both sides to mediastinal pleura which was very rare and unusual**. Most commonly anterior mediastinal cysts were thymic cysts in the literature.

- **RADIOGRAPHIC FEATURES** - Standard chest radiographs identified the bronchogenic cysts in 88%. Almost all were spheroid masses in the visceral compartment of the mediastinum (86%), and the remaining (14%) were intrapulmonary in location. Most were right-sided (70%). CT scan most often reveals the cystic nature of the lesion. Bronchogenic cysts have high Hounsfield numbers (up to 130) approaching those of soft tissue rather than the low density of water (0 to 20). On MRI- If the fluid within a bronchogenic cyst is of low specific gravity and mainly serous (a spring water cyst), it will be of very low signal intensity on T1-weighted images and of very bright signal intensity on T2-weighted images. If cyst contain large amounts of proteinaceous material have a characteristic appearance with high signal intensity on T1-weighted images.
- **TREATMENT** - Surgical Excision is the treatment of choice. The definitive histologic diagnosis can be established only by surgical excision. Even in the absence of symptoms, surgical exploration is recommended for nearly all patients with an abnormal mediastinal mass found by radiographic examination. Surgery is required not only to establish definitive tissue diagnosis but also to alleviate symptoms and prevent complications.
- **PATHOLOGY**- Bronchogenic cysts are most often spherical, unilocular cystic masses in contact with the tracheobronchial tree. Infrequently, may be lobulated, multiloculated, or rarely multiple. Cysts contain a whitish gray mucinous material but may contain brownish inspissated material. The common lining is a single layer of respiratory epithelium of ciliated columnar cells. Lamina propria contain bronchial glands, connective tissue, smooth muscle and cartilage. Our histopathology report also coincides with the features mentioned

## CONCLUSION

Anterior mediastinal cysts extending to both mediastinal pleura on either sides compressing the lungs are rare and unique. Most of anterior mediastinal cysts are thymic cysts and bronchogenic cyst occur in middle mediastinum but in our presenting case is located in anterior mediastinum. Mediastinal cysts can cause lung compression symptoms.

Histopathology only reveals the final diagnosis. Surgery is the best mainstay of treatment and can relieve all the symptoms and cure the patient permanently.

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