

# Infected Intraparenchymal Bronchogenic Cyst Mimicking Recurrent Lung Abscess in a Young Adult

A R M Ramzisham, MS\*, K F Johann, MRCS\*, A R Talal, PhD\*, O S M Joanna, MMed\*\*, D M Zamrin, MS\*

\*Division of Cardiothoracic Surgery, Department of Surgery, \*\*Division of Cardiothoracic Anaesthesia, Department of Anaesthesiology and Intensive Care, Heart and Lung Centre, Hospital Universiti Kebangsaan Malaysia, Jalan Yaacob Latiff, 56000 Cheras, Kuala Lumpur

### SUMMARY

A 23 year old female with a past history of a lung abscess diagnosed at the age of 13 years presented with recurrent episodes of productive cough. Chest radiograph and a high resolution CT scan of the thorax led to the diagnosis of a left lower lobe lung abscess. She underwent a successful thoracotomy and a left lower lobe lobectomy. Histopathological examination revealed the diagnosis of an infected congenital bronchogenic cyst. The recent literature on this is reviewed.

### KEY WORDS:

*Bronchogenic, Cyst, Lung Abscess*

### INTRODUCTION

Bronchogenic cysts are congenital cystic lesions originating from abnormal budding of the primitive ventral foregut<sup>1,2</sup>. Literature reports the incidence of bronchogenic cysts to be 13-15% of the congenital cystic lung diseases in infants and children<sup>3</sup>. It is uncommon for it to present during adulthood<sup>4</sup>. Those that manifest later in life are usually asymptomatic at the beginning but can eventually lead to a life threatening event producing compression, infection, haemorrhage or rupture if left untreated<sup>1-4</sup>. This case of a large solitary intraparenchymal bronchogenic cyst in a young adult is of interest to us and is reported here because the lesion was undiagnosed until she presented with recurrent episodes of severe infections.

### CASE REPORT

A 23-year-old female presented with a two month history of cough associated with foul smelling brownish sputum, fever, chills, loss of appetite, loss of weight and pleuritic chest pain. There was no haemoptysis. She denied any contact with tuberculosis, domestic pets and farm animals. There was nothing in the history to suggest any high risk behaviour, HIV or Hepatitis infection and recent travel. Past history revealed that she had external drainage for a lung abscess at the age of 13 years. She recovered well without any sequelae for approximately 10 years when she presented again with recurrent episodes of productive cough.

Physical examination revealed gross clubbing, left cervical lymphadenopathy, decreased breath sound in the left lower zone of the chest with dullness on percussion. A plain chest

radiograph showed a thick wall cavity with an air fluid level in the left lower lobe, raised left hemidiaphragm and obliteration of the costophrenic angle. High resolution CT scan of the thorax revealed a large cavity with thickened walls measuring 8.4cm x 8.0cm x 5.8cm in size with associated bronchiectatic changes in the anteromedial basal segment of the lung.

Under general anaesthesia with single lung ventilation together with thoracic epidural on board, she underwent thoracotomy and left lower lobectomy. On cross section of the tumour, it was found to contain thick yellowish mucinous like material. Histopathological examination revealed a diagnosis of an infected congenital bronchogenic cyst. Post operatively recovery was uneventful. She was discharged on the fifth day following surgery successfully.

### DISCUSSION

Bronchogenic cysts occur as a result of abnormal growth of the primitive foregut during 26th to 40th day of gestation<sup>1-5</sup>. Two thirds present in the mediastinum (central) while the remaining are located in the lung parenchyma (peripheral), with predilection to the lower lobes<sup>2-3</sup>. The location depends on the embryological stage of development at which the anomaly occurs, those arising later are more peripheral<sup>2</sup>.

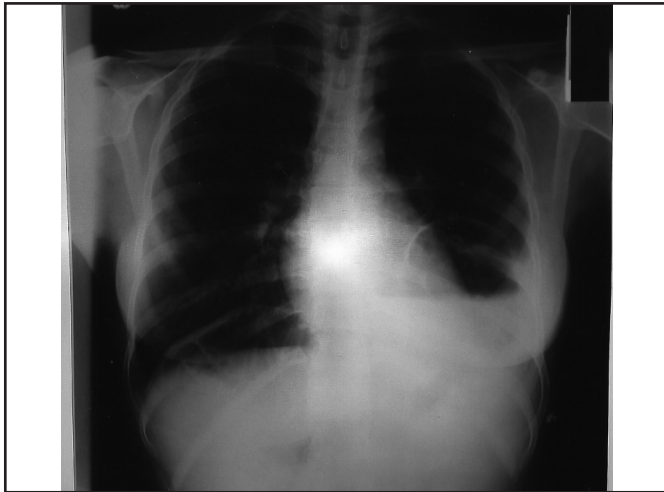
Unlike in our patient, most bronchogenic cysts are symptomatic and present during childhood if not at infancy<sup>1-5</sup>. The most frequent symptoms are cough, fever, pleuritic pain and dyspnoea.

Chest radiographs are diagnostic only in 77% of cases<sup>2</sup>. They appear as well circumscribed opaque lesions with a uniform density. Air fluid levels may be seen. CT scan is the best imaging modality as it provides optimal demonstration of its location, morphology and contents<sup>1-5</sup>. Intraparenchymal bronchogenic cysts are mostly opaque on chest radiograph due to the presence of mucoid material and retained secretions. The presence of air like in our patient is most likely due to the patent small bronchial communication as described by Kaur *S et al*<sup>6</sup>. CT scan in our patient has also failed to suggest a diagnosis of bronchogenic cyst.

With a late presentation and the radiological findings, this case mimics a simple pulmonary abscess which might be treated with closed drainage only to recur later as seen in this

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*Corresponding Author: Mohd Zamrin Dimon, Division of Cardiothoracic Surgery, Department of Surgery, Hospital Universiti Kebangsaan Malaysia, Jalan yaacob Latiff, 56000 Cheras, Kuala Lumpur Email: wanzam\_2@yahoo.com*



**Fig. 1:** CXR showing left lower zone air fluid level with thickened wall of the cyst.



**Fig. 2:** CT thorax showing a left lower lobe abscess with surrounding bronchiectatic lung parenchyma.

patient. The percutaneous drainage has obviously failed to cure the abscess because of the stagnant pool of secretions form the cyst leading to recurrent suppurative infection in this patient over a period of time.

Complications of bronchogenic cysts are frequent in approximately 45% of cases. The common ones are airway compression, infection, rupture with an air leak or haemoptysis<sup>1-5</sup>. Bronchiectatic changes occur as a result of chronic compression and displacement of the distal airways by the enlarging cyst<sup>3</sup>. Various methods of treatment have been suggested such as simple aspiration which has a high recurrence rate, exteriorization of the cyst wall and injection of the cyst with Lipiodol with different results. Our patient has been very lucky not to have any life threatening complications prior to surgery. At surgery, the suspicion of bronchogenic cyst was made and in view of the damaged surrounding parenchyma, lobectomy was thought the best for her.

Definitive tissue diagnosis is usually available only after surgical excision. Differential diagnoses of the parenchymal lung lesion include lung abscess, hydatid disease, fungal disease, pulmonary tuberculosis, infected bullae, vascular malformations and neoplasm should be entertained and ruled out as in our patient prior to histopathological diagnosis<sup>2,4</sup>.

Microscopically, bronchogenic cysts contain one or more of the tissues that are normally found in the trachea or bronchi<sup>3</sup>. As in our patient, the cyst was lined with respiratory epithelium along with the presence of underlying fibrocartilaginous stroma, smooth muscle and hyaline cartilage as exactly described by other authors. This confirmed the diagnosis.

## CONCLUSION

In view of the potential complications and diagnostic difficulty of the cystic lesions of the lung parenchyma, one should suspect this possibility when young adult patients present with recurrent suppurative infections. From the review of the articles, once the diagnosis is suspected, removal should be advised as early as possible to avoid complications<sup>1-4</sup>. Lobectomy is an acceptable mode of treatment especially in cases like our patient. A conservative approach such as surgical excision of the cyst when detected early may be adequate to conserve normal lung tissues.

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