

CASE REPORT

MEDIASTINAL BRONCHOGENIC CYST

Sofia Elahi, Alison Fecher, Thomas Bridas

Department of Surgery, Western Pennsylvania Hospital, Pittsburgh, PA, USA

A 29 year old woman was found to have a chest mass as part of routine screening with a chest x-ray for an unrelated neurosurgical procedure. Further investigation with a chest CT raised the suspicion of a paravertebral neurogenic tumor. The patient underwent bronchoscopy and resection of the lesion by Video Assisted Thoracic Surgery (VATS). The diagnosis of Bronchogenic Cyst was established after histopathologic examination of the resected tumor. Bronchogenic Cysts are relatively rare primary mediastinal tumors. The paravertebral site is an unusual presentation for these tumors.

INTRODUCTION

Bronchogenic Cysts should be considered in the evaluation of mediastinal lesions. These embryologic remnants occur as developmental abnormalities of the primitive foregut. Bronchogenic Cysts may present with compressive symptoms such as chest pain, cough, dyspnea, or acute respiratory distress particularly in children.¹ In the absence of adjacent structures prone to compression most bronchogenic cysts remain asymptomatic.² The following case report describes our experience with an asymptomatic Bronchogenic Cyst.

CASE REPORT

A 29 year old female underwent preoperative evaluation for anterior lumbar interbody fusion. Chest x-ray revealed a poorly localized right sided paravertebral lesion. The patient denied any significant symptoms. Specifically, she denied chest pain, dyspnea, cough, fever, chills, smoking history or exposure to TB. The patient's past medical history included: lumbar disc herniation, appendectomy, and tonsillectomy. The physical exam was unremarkable with lungs clear on auscultation.

The screening chest x-ray taken in February 2002 revealed a right sided 4 cm round density on lateral view. The density was overlying the lower thoracic vertebrae. The lesion was further evaluated with CT scan with intravenous contrast, revealing a 3.8 x 2.7 cm right paraspinal mass at the level of T 10. There were no associated pleural effusions or lymphadenopathy. Possible differential diagnosis included: a schwannoma, neurofibroma, ganglioneuroma and paraganglioneuroma.

A chest CT scan was repeated approximately six months later. The patient remained asymptomatic and the CT scan was unchanged. A fiberoptic bronchoscopy with exploratory right video assisted thoracic surgery was performed for presumed neurogenic tumor.

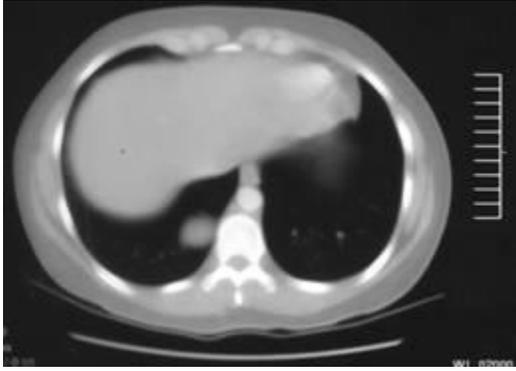


Figure-1: CT scan with intravenous contrast revealed a 3.8 x 2.7 cm right paraspinal mass at the level of T10.

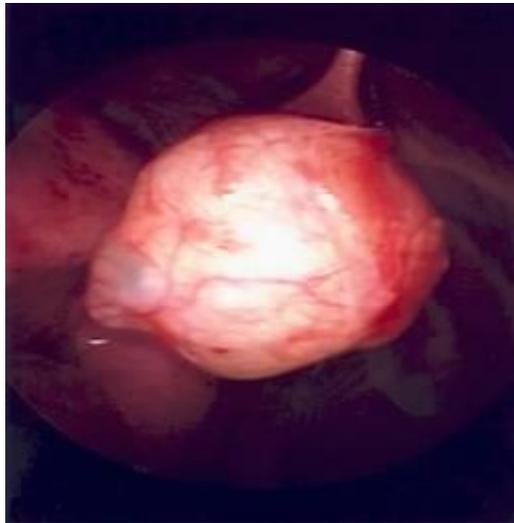


Figure-2: Appearance on bronchoscopy

The tumor was visualized after retracting the diaphragm inferiorly and the lung superiorly. The tumor was tethered by a narrow stalk, which was isolated and divided. The specimen was sent to pathology. On gross examination, the mass was described as a cystic lesion filled with mucoid thick viscous fluid within a rubbery ring like structure. On frozen section the cyst was lined with bronchial epithelium establishing the diagnosis of a Bronchogenic Cyst.

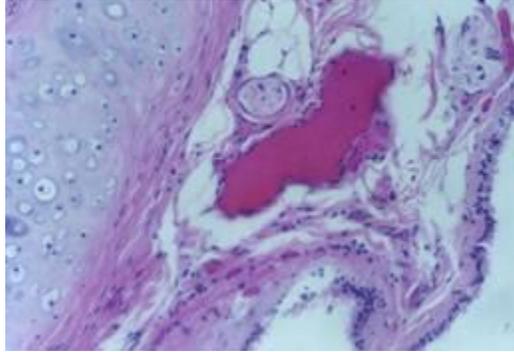


Figure-3: Histological Appearance

DISCUSSION

Most Bronchogenic Cysts are found in the mediastinum reflecting their embryologic origin from the primitive foregut.³ Since Bronchogenic Cysts are derived from the tracheobronchial tree, there is often an attachment/stalk as seen in our patient. Increasingly VATS is used preferentially over an open technique for resection. Martinod et al. were able to excise 65% of the Bronchogenic Cysts via thoracoscopy.⁴ Interestingly neither size nor mediastinal location were the determining factors for successful thoracoscopic resection. Rather, the presence of adhesions and vascular complications determined the need for the more traditional thoracotomy approach. Laparoscopic resection is preferred due to reduction in length of hospital stay and the reduction in postoperative pain.

The majority of Bronchogenic Cysts remain asymptomatic. Consequently some argue that treatment of Bronchogenic Cysts is controversial. Due to the difficulty in preoperative diagnosis, the lesions are treated surgically by enucleation. However, Bronchogenic Cysts are known to undergo malignant transformation into carcinomas and sarcomas. Also they are known to become infected and may fluctuate in size causing compressive symptoms. There are reports of acute respiratory distress in pediatric patients attributed to Bronchogenic Cysts secondary to their mediastinal location.⁵ Clearly such patients require urgent surgical intervention.

The role of MRI and TEE in the evaluation of Bronchogenic Cysts has been investigated by Lugo – Oliviers.⁶ Generally, both MRI and U/S may be more effective in diagnosing fluid filled cystic lesions. Unfortunately, these additional investigations are of little clinical significance due to difficulty in preoperative diagnosis. In our case report the paraspinous location of the lesion gave rise to the suggestion of a neurogenic tumor.

In conclusion, the diagnosis of Bronchogenic Cyst ultimately depends on the histopathological diagnosis confirming the presence of respiratory epithelium in the resected mass. Thoracoscopic resection of Bronchogenic Cysts is a viable surgical option for the removal of uncomplicated lesions.

REFERENCES

1. Ribet ME, Copin MC, Gosselin B. Bronchogenic cysts of the mediastinum. *J Thorac Cardiovasc Surg* 1995;109:1003-10

2. Coselli MP, de Ipolyi P, Bloss RS, Diaz RF, Fitzgerald JB. Bronchogenic cysts above and below the diaphragm: report of eight cases. Ann Thorac Surg 1987;44(5):491-4.
3. Ingu A, Watanabe A, Ichimiya Y, Saito T, Abe T. Retroperitoneal bronchogenic cyst: a case report. Chest 2002;121(4):1357-9.
4. Martinod E, Pons F, Azorin J, Mouroux J, Dahan M, Faillon JM et al. Thoracoscopic excision of mediastinal bronchogenic cysts: results in 20 cases. Ann Thorac Surg 2000;69(5):1525-8
5. Ahrens B, Wit J, Schmitt M, Wahn U, Niggemann B, Paul K. Symptomatic bronchogenic cyst in a six month old infant: case report and review of the literature. J Thorac Cardiovasc Surg 2001;122(5):1021-3
6. Lugo-Olivieri CH, Schwartzman GJ, Beall DP, Lima JA, Fishman EK. Intrapericardial bronchogenic cyst: assessment with magnetic resonance imaging and transesophageal echocardiography. Clin Imaging 1999;23(2):81-4

Address for Correspondence:

Sofia B. Elahi MD, 44 Michelangelo Blvd. Brampton RR9, Ontario L6T 3 Z8, Canada. Phone 905-794-0640

Email: m_elahi123@yahoo.com