

# Brochoscopic Cryoablation of a Large Endobronchial Chondroid Hamartoma Presented as Right Middle Lobe Collapse in a 63 Years Old Male Patient

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## Abstract:

*Chondroid hamartoma is the most common benign tumor of lung, which account 8% of pulmonary neoplasm. Most often they are seen peripherally in the lung parenchyma. But very rarely it can originate endo-bronchially and present as collapse of lung or lobe. To be precise less than 10% cases was reported to be found. Here we mention a case of endo-bronchial chondroid hamartoma in a 63 years old gentleman presented as right middle lobe collapse and was diagnosed*

*after repeated attempts of bronchoscopic biopsy or trans-thoracic fine needle aspiration. The tumor was removed by bronchoscopic cryo-debulking of the mass almost completely instead of thoracotomy resection or APC laser ablation.*

**Keywords:** Endobronchial Chondroid Hamartoma, Middle lobe collapse, Cryo-debulking

(J Bangladesh Coll Phys Surg 2024; 42: 292-296)

DOI: <https://doi.org/10.3329/jbcps.v42i3.74084>

## Introduction:

Benign tumors of the lung constitute a small minority of all lung tumors but they can cause clinical and radiographic changes similar to those seen in malignant neoplasms. Hamartoma is the most common benign neoplasm involving the lung. It is commonly seen in adult males ranging from 40 Years to 60 years. Most hamartomas are situated peripherally in the lung parenchyma. But endobronchial hamartoma is found rarely in about less than 10% cases. Mainstay of treatment is resection following thoracotomy or APC laser ablation by bronchoscopy. This report reviews

the rarely encountered endobronchial hamartoma and the use of cryotherapy (debulking) instead of APC.

## Case Report:

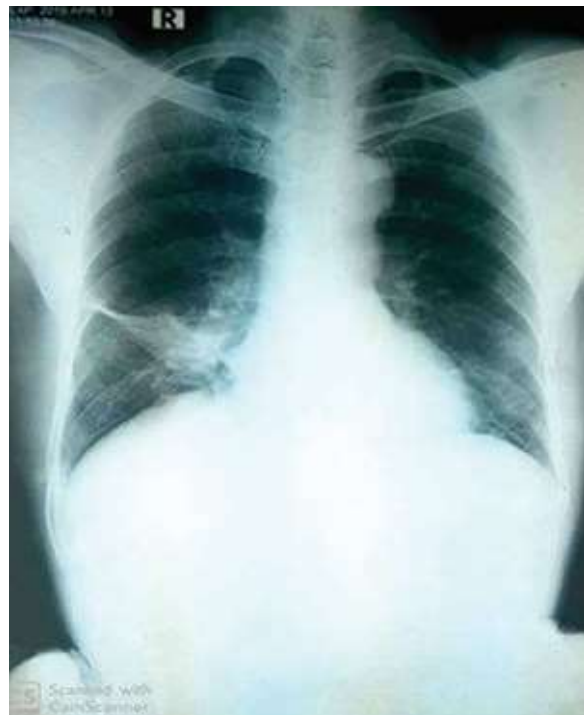
A 63 years old gentleman was admitted to National Institute of Chest Diseases and Hospital (NIDCH) with

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**Received:** 16 January 2024

**Accepted:** 9 March 2024



**Figure 1:** chest X- Ray showing an inhomogeneous opacity occupying part of lower zone of right lung inhomogeneous opacity occupying part of lower zone of right lung.

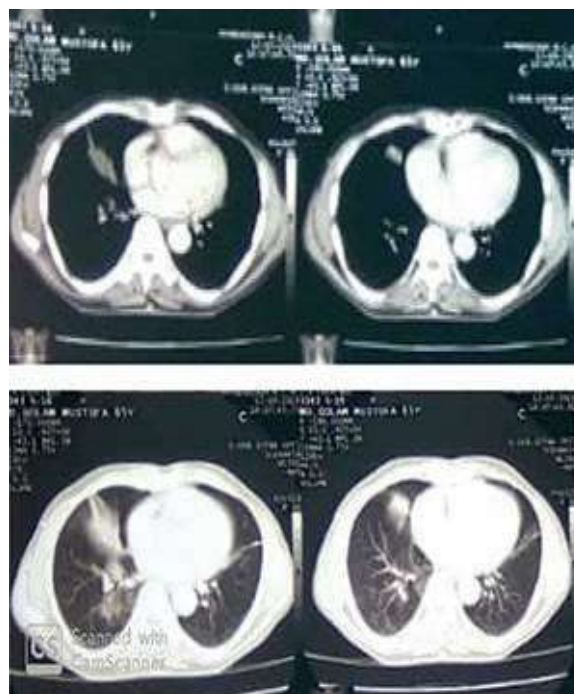
the complaints of cough, chest pain and fever for 3 months. He also gave H/o loss of appetite and gradual weight loss. During this period of illness he visited several consultants and as his Chest x-ray posterior-anterior view showed an inhomogeneous opacity occupying part of lower zone of right lung bronchoscopy was advised. Bronchoscopy was done which revealed a well circumscribed round smooth surface tumor at the commencement of middle lobe bronchus completely occluding the lumen. Biopsy was taken at that time and revealed chronic bronchitis. As there was no conclusive result along with his symptoms worsening he was referred to NIDCH. He was a smoker with smoking history of 30 pack year. There was no H/O PTB.

On physical examination, he was ill looking, anxious, mildly anemic, pulse-90 beats/min, Blood pressure- 120/80 mmHg, respiratory rate 20 breaths/min, body temperature- 99° F. On respiratory system examination chest movement was restricted on right side with reduced chest expansion. Trachea was centrally placed. Vocal fremitus was reduced on right side of chest from

4<sup>th</sup> to 5<sup>th</sup> intercostal space along mid-clavicular line, from 6<sup>th</sup> to 7<sup>th</sup> intercostal space along mid-axillary line and from 8<sup>th</sup> to 9<sup>th</sup> intercostal space along dorsal scapular line. Percussion note was dull in afore mentioned area. Breath sound was absent and vocal resonance was reduced in previously mentioned area. Other system examination revealed no abnormality.



**Figure-2:** First Bronchoscopy of the patient showed right middle lobe endobronchial growth

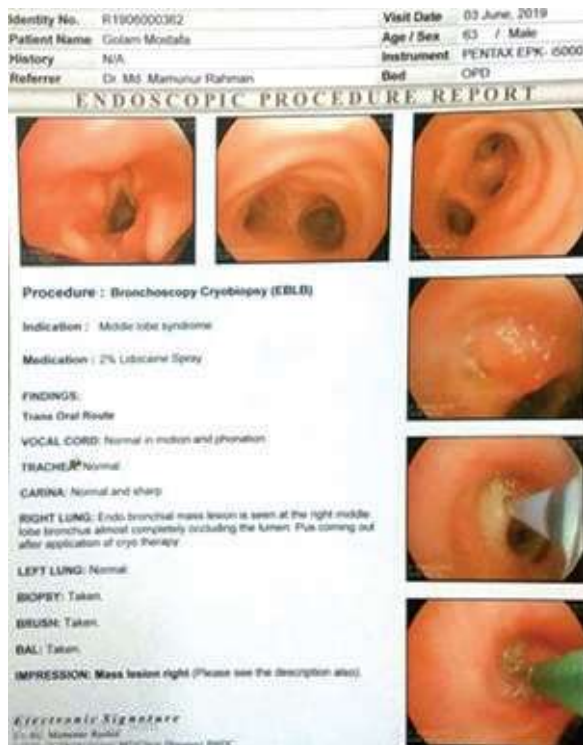


**Figure 3:** CT scan of the chest showing right hilar mass compressing right principal bronchus with right middle lobe consolidation.

Hematologic findings were white blood cell count 6000/mm<sup>3</sup> and ESR 40mm in 1<sup>st</sup> hour. Sputum smear for acid fast bacilli were negative and cytology of sputum, BAL fluid and bronchial brush revealed no malignant cells. A computed tomographic scan of the chest demonstrated right hilar mass compressing right principal bronchus with right middle lobe consolidation CT-guided FNAC from right mass lesion revealed inflammatory lesion. Repeat bronchoscopy with biopsy was done with same pathologic findings previously mentioned.

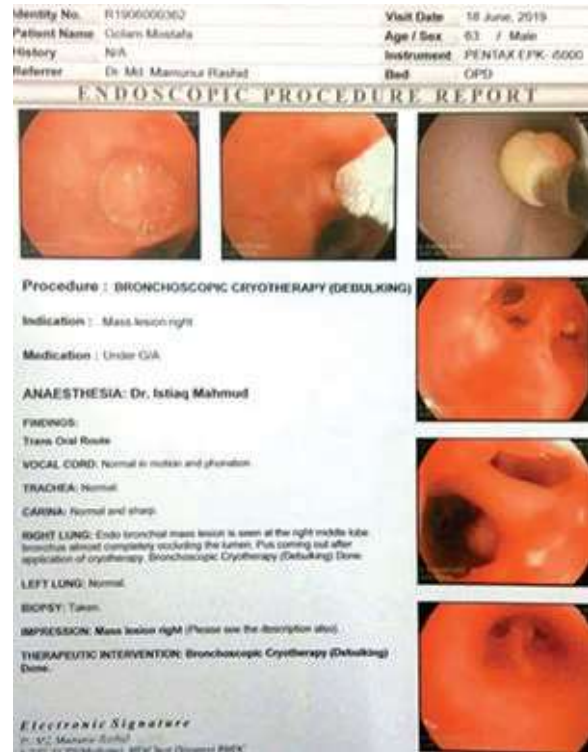
Bronchoscopic cryo-biopsy was done by ERBE cryosurgery machine and took a larger tissue from the endobronchial mass by a crybiopsy prob 2.0 mm for histopathological study, but again study showed fragments of bronchial tissue lined by pseudo-stratified

ciliated columnar epithelial cells without any malignancy or granuloma. Thereafter, I planned to debulk the tumor bronchoscopically by cryotherapy. During this procedure, I had frozen the tissue first and pulled the frozen portion part-by-part and by this technique almost full length middle lobe and its lateral segment was cleared-up except a smaller portion at its distal end (called freeze-thru technique). Histopathological study the collected specimens revealed bronchial tissue lined by pseudo-stratified ciliated columnar epithelium cells and sub-epithelium containing adipose tissue, chondroid tissue and fibromyxoid tissue, that was consistent with chondroid hamartoma.



**Figure 4:** Subsequent Fibre-optic Bronchoscopy with cryobiopsy done from the endobronchial growth at right middle lobe bronchus

Patient was attended in follow-up visit after 3 months and at that time, he hadn't respiratory symptoms and no abnormality was detected on physical examination. Follow up chest X-ray P/A view showed complete absence of the opacity found previously on chest radiographs. A repeat follow-up bronchoscopy was done, that revealed patent middle lobe and it's lateral



**Figure 5:** Bronchoscopic cryo-ablation of right middle lobe endobronchial growth



**Figure 6:** Serial pictures of bronchoscopic cryo-ablation of right middle lobe endobronchial growth





**Figure 7:** Chest X-ray PA view showing complete absence of opacity.



**Figure 8:** Bronchoscopy showing endobronchial growth at lateral segment of right middle lobe bronchus.

segment except a smaller endobronchial growth at distal lateral segment.

**Discussion:**

Pulmonary chondroid hamartoma, as a subtype of pulmonary hamartoma, is defined when chondroid tissue predominates in the composition of the tumor. Hamartoma is the most common benign tumor of the lung, which accounts for 8% of pulmonary neoplasms. It is well known that hamartomas are composed of tissue elements normally found at that site, but which are growing in a disorganized mass, usually seem as single, round nodules with distinct boundaries<sup>1</sup>.

A cytogenetic analysis of the pulmonary hamartomas showed an abnormal karyotype and revealed recombinations between chromosomal bands 6p21 and 14q24,<sup>2</sup> which supported that a hamartoma of the lung was a true neoplasm. Solitary pulmonary hamartoma is a common benign tumor that is usually seen in males, whereas multiple pulmonary hamartomas are rare and predominate in females<sup>3,4</sup>. Only a few reports of multiple pulmonary chondroid hamartomas were described so far.

Most patients with pulmonary hamartoma are asymptomatic, whereas some patients may have respiratory symptoms such as hemoptysis, cough, phlegm, or chest pain<sup>5</sup>.

Generally speaking, a non-anatomical resection is curative for a benign lesion although the location of the lesion plays an important role in the decision of surgical type<sup>1</sup>. Video-assisted thoracic surgery now seems to be a trend in dealing with benign tumors because of less morbidity of surgical complications and hospital stay compared with traditional thoracotomy. On the other hand, endobronchial hamartomas can be well managed by endoscopy and laser ablation<sup>6</sup>.

**Conclusion:**

A large endo-bronchial chondroid hamartoma presented as right middle lobe collapse in a smoker patient of elderly age this time. Repeated attempts of bronchoscopic biopsy or trans-thoracic fine needle aspiration was failed to explore the cause. A large mass lesion with right middle lobe collapse in an elderly smoker patient, most of the time it is thought to be malignant origin. But in inconclusive attempts, chondroid hamartoma also should be considered in the differential

diagnosis along with the other benign lesions. This large tumour was almost completely excised endobronchially by cryotherapy. Bronchoscopic cryotherapy was used instead of laser ablation or thoracotomy and surgical excision- that is much more invasive with high morbidity and cost.

**Conflict Of Interest:**

The authors of this paper have declared that there is no conflict of interest to any of the authors.

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