

Intrapulmonary bronchogenic cyst mimicking primary lung cancer with atypical radiological findings

Toru Nakamura, Shouichi Takayama, Tomonari Oki, Yoshiro Otsuki, Kazuhito Funai, Futoru Toyoda

ABSTRACT

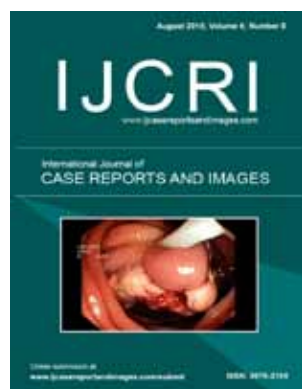
Introduction: Bronchogenic cyst is a congenital disease secondary to abnormal budding of the bronchial tree during embryonic development. It usually develops in the mediastinum and is rarely seen in the lung parenchyma. A diagnosis is often made before surgery because of its typical cystic appearance in computed tomography scan and magnetic resonance imaging scan.

Case Report: A 71-year-old female presented with an abnormal shadow in her right lung on a chest radiograph. She underwent right upper lobectomy, under the suspicion that the nodule was primary lung cancer. Pathological examination showed an intrapulmonary bronchogenic cyst with a thickened cyst wall containing hyalinized fibrous tissue and lymphocyte infiltration.

Conclusion: Even an asymptomatic bronchogenic cyst might have been affected by an infectious event in the past, and could reveal a variety of atypical radiological findings.



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CASE REPORT

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Introduction: Bronchogenic cyst is a congenital disease secondary to abnormal budding of the bronchial tree during embryonic development. It usually develops in the mediastinum and is rarely seen in the lung parenchyma. A diagnosis is often made before surgery because of its typical cystic appearance in computed tomography scan and magnetic resonance imaging scan. **Case Report:** A 71-year-old female presented with an abnormal shadow in her right lung on a chest radiograph. She underwent right upper lobectomy, under the suspicion that the nodule was primary lung cancer. Pathological examination showed an intrapulmonary bronchogenic cyst with a thickened cyst wall containing hyalinized fibrous tissue and lymphocyte infiltration. **Conclusion:** Even an asymptomatic bronchogenic cyst might have been affected by an infectious event in the past, and could reveal a variety of atypical radiological findings.

Keywords: Bronchogenic cyst, Differential diagnosis, Intrapulmonary, Lung cancer

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INTRODUCTION

Bronchogenic cyst is a congenital disease secondary to abnormal budding of the bronchial tree during embryonic development. It usually develops in the mediastinum and is rarely seen in the lung parenchyma. A diagnosis is often made before surgery because of its typical cystic appearance in computed tomography (CT) scan and magnetic resonance imaging (MRI) scan. We herein report a case of intrapulmonary bronchogenic cyst mimicking primary lung cancer with unusual radiological findings.

CASE REPORT

A 71-year-old female demonstrated an abnormal shadow in the right lung on a chest X-ray. She had no symptoms or remarkable history. Enhanced chest CT scan revealed an irregular nodule in the right upper lobe with a pleural indentation-like appearance and a heterogeneous enhancement suggesting the primary lung cancer but benign cyst (Figure 1). Positron emission tomography (PET) scan was not available then. MRI scan of brain and abdominal CT scan revealed no metastatic lesions. Although a transbronchial biopsy could not

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yield a histological diagnosis, we strongly suspected the lesion was non-small cell lung cancer (T2aNoMo stage I B) and planned surgery with diagnostic and therapeutic intent. She underwent right upper lobectomy without needle aspiration to avoid bleeding or air embolism because the lesion located close to the hilar structures. The cut surface of the surgical specimen revealed a cystic appearance circumscribed by a thickened wall and intraoperative frozen examination showed no malignancy. The postoperative course was uneventful and she was discharged on the seventh postoperative day.

Histological examination revealed that the cyst wall contained cartilage, smooth muscle, and glandular tissue, confirming a diagnosis of intrapulmonary bronchogenic cyst (Figure 2A). The cyst wall also contained hyalinized fiber and mild lymphocyte infiltration, suggesting a past infection that might have caused the irregular radiological findings (Figure 2B).

DISCUSSION

Bronchogenic cyst is one of the bronchopulmonary malformations that result from an abnormal budding of the tracheobronchial tree [1]. It usually develops in the mediastinum and is rarely seen in the lung. Its typical cystic appearance can be visualized on CT scan and MRI

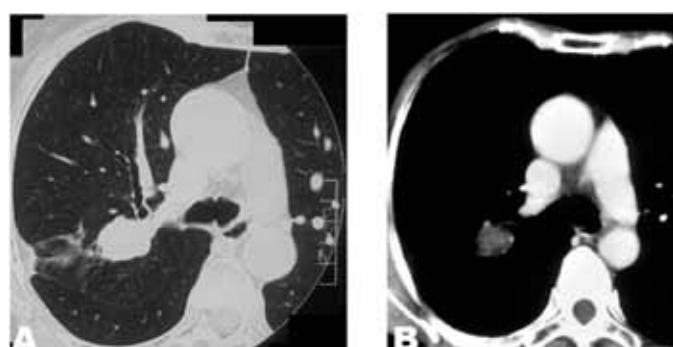


Figure 1: (A) Computed tomography revealed an irregular nodule with a pleural indentation-like appearance in the right upper lobe, (B) The nodule was enhanced heterogeneously in the peripheral area.

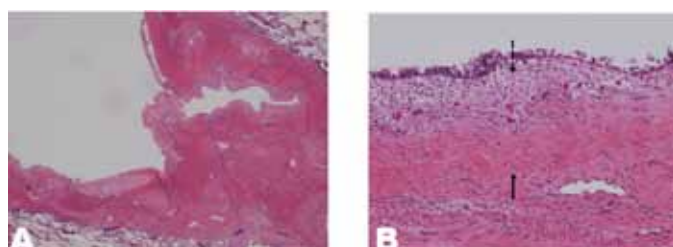


Figure 2: (A) Luminal surface of the cyst contained a ciliated columnar and stratified squamous epithelium. The cyst wall contained cartilage, smooth muscle, and glandular tissue, confirming a diagnosis of bronchogenic cyst (H&E stain, x15), (B) Hyalinized fibrous tissue (arrow) and mild lymphocyte infiltration (dashed arrow) were found in the cyst wall (H&E stain, x135).

scan [2]. However, we misdiagnosed the present case as primary lung cancer because of its distribution in the lung and the radiological findings suggested malignancy rather than a benign cyst due to an irregular shape and a heterogeneous enhancement. Histological examination revealed hyalinized fibrous tissue and lymphocyte infiltration along the cyst wall. Although the present patient had no remarkable history of pneumonia, a latent infection in the past might have caused these histological changes and resulted in the unusual radiological findings mimicking lung cancer.

Surgical resection is required both in stage I non-small cell lung cancer and bronchogenic cyst [2, 3]. Although the present patient underwent lobectomy, we could have chosen a lung-sparing approach based on a preoperative diagnosis of the cyst [4]. We should have performed chest MRI scan in this case because it is useful not only in detecting a cyst but also in differentiating malignancy from benign tumors as PET scan was not available [5].

CONCLUSION

Even an asymptomatic bronchogenic cyst might have been affected by an infectious event in the past, and could reveal a variety of atypical radiological findings. Therefore, bronchogenic cyst should be raised as a differential diagnosis for an undiagnosed lung lesion.

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Author Contributions

Toru Nakamura – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Shouichi Takayama – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Tomonari Oki – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Yoshiro Otsuki – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Kazuhito Funai – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Futuru Toyoda – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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REFERENCES

1. O’Rahilly R, Müller F. Chevalier Jackson lecture. Chevalier Jackson lecture. Respiratory and alimentary relations in staged human embryos. New

- embryological data and congenital anomalies. Ann Otol Rhinol Laryngol 1984 Sep-Oct;93(5 Pt 1):421–9.
2. McAdams HP, Kirejczyk WM, Rosado-de-Christenson ML, Matsumoto S. Bronchogenic cyst: imaging features with clinical and histopathologic correlation. Radiology 2000 Nov;217(2):441–6.
3. Patel SR, Meeker DP, Biscotti CV, Kirby TJ, Rice TW. Presentation and management of bronchogenic cysts in the adult. Chest 1994 Jul;106(1):79–85.
4. Criscione A, Scamporrino A, Calvo D, Migliore M. Lung-sparing approach for an intrapulmonary bronchogenic cyst involving the right upper and middle lobes. BMJ Case Rep 2013 Oct 16;2013.
5. Bartoletti R, Meliani E, Bongini A, Magno C, Cai T. Fluorodeoxyglucose positron emission tomography may aid the diagnosis of aggressive primary prostate cancer: A case series study. Oncol Lett 2014 Feb;7(2):381–6.

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