Cystic Pulmonary Chondroid Hamartoma:  
A Case Report

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Hamartomata is the most common benign type of tumor, occurring in the lung. However, a cystic pulmonary hamartoma is extremely rare, and is difficult to diagnose due to its nonspecific nature. We report a case of cystic pulmonary hamartoma in which a popcorn-like calcification is clearly identified, thus enabling a confident diagnosis of the disease.

**Index words:** Hamartoma  
Lung neoplasms  
Cysts

Pulmonary hamartomas are benign lung neoplasms composed of varying proportions of mesenchymal tissues including cartilage, fat, epithelial, and connective tissue combined with entrapped respiratory epithelium (1). Pulmonary hamartomas are the most common benign neoplasms of the lung, accounting for 7–14% of benign solitary pulmonary nodules (1, 2). Pulmonary hamartomas are most commonly presented as incidental lung nodules found on a routine chest radiographic examination in asymptomatic individuals. Previous reports of cystic chondroid hamartomas have been made (2–7), but are extremely rare. We report a case of cystic pulmonary hamartoma which was manifested as a cystic lesion with a solid component. The diagnosis was characterized as a clearly identified popcorn-like calcification, which enabled us to make a confident diagnosis of the disease.

**Case Report**

A 30-year-old asymptomatic man was referred to our hospital with an incidentally discovered chest radiographic abnormality. His admission chest radiograph revealed a nodular lesion with a maximum diameter of 3 cm in the left lower lung zone (Fig. 1A). The physical or routine laboratory examination results were unremarkable. A chest CT demonstrated a 3 cm cystic lesion containing its nodular component in the posterior basal segment of the left lower lobe. The cyst had a relatively even wall thickness and contained a solid component in its nondependent region (Fig. 1B). The solid component of the lesion shows a lobulated contour, and an internal popcorn-like calcification (Fig. 1C). The Hounsfield unit measurements of the lesion’s solid component were 45 HU on the precontrast image, and 54 HU on the postcontrast image.

This lesion was intuitionally regarded as a benign condition, such as a hamartoma, as a result of the popcorn-like calcification within the solid component of the lesion and enhancement pattern. However, because the cystic appearance of the lesion was considered unusual

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to be diagnosed as a hamartoma, other possibilities such as a lung malignancy arising from a cystic lesion could not be excluded. Therefore, a percutaneous fine-needle aspiration biopsy was performed on the solid component of the lesion, and revealed a few fragments from chondroid nests, suggesting the possibility of a chondroid hamartoma. A wedge resection of the left lower lobe containing the lesion was finally performed using the video-assisted thoracoscopy surgery for a definite diagnosis as well as a treatment.

Upon gross pathologic examination of the resected specimen, a 2 cm diameter, solid lobulated white-colored nodule was found surrounded by a cystic space (Fig. 1D). No direct communication between the surrounding airways and the cystic space were found. Microscopically, the tumor was composed of hyaline cartilage lobules with some calcified regions, as well as mature adipose and fibrous connective tissues (Fig. 1E). The cystic space was found to be lined with bronchial epithelia. As a result, the microscopic diagnosis was determined to be a chondroid hamartoma.

**Discussion**

Most patients with pulmonary hamartomas are asymptomatic and the nodules were incidentally detect-
ed upon a routine chest radiographic examination. However, patients with a hamartoma are occasionally symptomatic, especially when the tumor is located within a bronchus [8].

Usually, pulmonary hamartomas present as a small solid peripheral nodules. Cystic pulmonary hamartomas are usually quite rare, with only nine reported cases in the English literature [2-7]. Of these nine cystic hamartomas, six were identified in men and three in women. Eight tumors were observed in the left lung. These cystic hamartomas were initially misinterpreted as tuberculomas, echinococcal cysts, congenital or acquired cysts, as well as carcinomas [4]. In our case, although the tumor is presented as a cystic lesion with a solid mural nodule, we initially believed that the most likely diagnosis was a hamartoma because of the presence of a popcorn-like calcification within the solid component of the cystic lesion.

Controversies regarding the histogenesis of cystic pulmonary hamartomas have existed for several decades; however, their synthesis remains uncertain. Pulmonary hamartomas commonly have small epithelial-lined tubules resembling bronchioles within the connective tissue septa that divide the various components of the tumor. One proposed theory for cyst formation within hamartomas is that those epithelia serve as the route of air entry into the lesions. Once a continuity exists between these tubules within the bronchial tree. A check-valve mechanism might result in the gradual expansion of these epithelial-line tubules and finally an air-filled cavity enveloping and containing into the original hamartoma [2-5]. However, for this experiment, no direct communication between exists for the surrounding airways and the air-filled cystic space [2, 4].

A diagnosis of a pulmonary cystic hamartoma may be difficult, because the radiographic appearances of a pulmonary cystic hamartoma is nonspecific. However, the diagnosis of the pulmonary cystic hamartoma should be considered in otherwise healthy patients who have a longstanding cystic lung lesion, particularly when the solid component of the lesions had popcorn-like calcifications [3].

In summary, we report a case of cystic pulmonary hamartoma, which was manifested as a cystic lesion with a solid component in the form of a clearly identifiable popcorn-like calcification which enables us to make a confident diagnosis of the disease.

References