A 48-year-old woman had a symptom of chest pain a month ago, without obvious inducement, coughing, sputum, hemoptysis, or chest tightness. The pain in the chest was irregular. The patient was admitted to the First Hospital of Jilin University for further treatment. The patient denied the history of hypertension, coronary heart disease, diabetes mellitus, and other diseases. She also denied family history of hereditary disease. However, she has had a smoking history for 20 years, about 10 cigarettes per day, no quit. Physical examination and blood tests did not show apparent abnormality. All tumor markers were negative. The computed tomography (CT) showed a high-density mass of right upper lobe of the lung, which was about 17 mm × 15 mm [Figure 1a]. The boundary was smooth, and the density was uniform. The image of a narrow arc of fluid was seen in the right thoracic cavity and there was no significant lymph node (LN) metastasis in the mediastinum [Figure 1b]. The patient underwent exploration under thoracoscope, and the intraoperative rapid pathology showed suspicious adenocarcinoma, the patient received the resection of the upper lobe of the right lung. However, the final pathology revealed the pulmonary sclerosing hemangioma (PSH). Microscopic findings of the postoperative specimen showed a mixture of papillary and sclerotic patterns with two cell types as follows: cuboidal surface and stromal round cells. The cuboidal surface cells resembling pneumocytes and round stromal cells with well-defined borders were centrally located round to oval vesicular nuclei and rare nucleoli. The round stromal cells mostly had slightly eosinophilic cytoplasm with some showing a more vacuolated or foamy appearance. In other areas, there were large blood-filled spaces lined by flattened cells. Solid sheets of round cells with scattered cuboidal surface cells forming small tubules were also noted [Figure 1c]. The round stromal cells were positive for thyroid transcription factor-1 (TTF-1) and vimentin but negative for epithelial membrane antigen (EMA) and pan-Cytokeratin, and the cuboidal surface cells were positive for TTF-1, vimentin, EMA, Ki-67, and pan-Cytokeratin [Figure 1d–1h].

PSH is a rare tumor of the lung which was first reported by Liebow and Hubbell. It occurs more frequently in Asian women than in Western women. It was reported that most of the patients were usually asymptomatic, and were incidentally discovered because of a routine checkup. While some patients had chronic symptoms such as cough, chest pain, and blood in phlegm. Many aspects of PSH remain unclear because of its low occurrence. Chest CT often shows as an isolated, restricted mass. Relevant immunological histology has revealed that the tumor was mainly composed of the primary respiratory epithelium, the incomplete diapolitic Type II cell or the clara cell. Macroscopically, the tumor mainly contains four patterns as follows: papillary, sclerotic, solid, and hemorrhagic.

PSHs are very difficult to identify only by chest CT. PSHs are often misdiagnosed as lung cancer, inflammatory pseudotumor, hamartoma, and other lung diseases because there is little information and image data about it. The gold standard for diagnosis of this disease is pathological evidence. However, pathologic results can also cause misdiagnosis. In this case, the intraoperative rapid pathology misdiagnosed the mass as pulmonary adenocarcinoma. Saha et al. reported a case of PSH that was misdiagnosed as lung adenocarcinoma relying on fine-needle aspiration cytology.

The only treatment for PSH is surgical resection. For patients with PSH, the systemic LN dissection remains controversial because of the possibility of regional LN metastasis is very low and its prognosis is good even for a patient with LNs metastasis. Hu et al. reported patients...
with bilateral multiple tumors and pleural metastases had no recurrence or metastasis during the follow-up of 4.2–13.5 years. Kim et al.\(^1\) reported a case of PSH with bone metastasis, and indicated that PSH could metastasize not only to LNs with benign histologic features but also to bone with a malignant histology. There was no doubt that the operation for the patient of this case was completely correct.

PSH is both an opportunity and a challenge for the clinicians, radiologist, and pathologists. Clinicians need to combine clinical symptoms with imaging and pathologic results to improve the ability of diagnosing the disease. With the deepening of the understanding of PSH, there will be less controversy about the treatment and prognosis of this disease.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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