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Case Report

Pulmonary capillary hemangioma diagnosed by needle core biopsy: Case report and review of the literature

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ABSTRACT

Pulmonary hemangiomas are extremely rare. Here we report a case of a 42 year old healthy woman with an incidental nodule identified by computed tomography (CT). In consideration of her smoking history and the appearance of irregular borders of the nodule on CT imaging, despite lack of change after a 9-month follow-up, a CT-guided percutaneous needle core biopsy was performed to rule out lung cancer. A diagnosis of solitary pulmonary capillary hemangioma was made histopathologically. The feasibility of using needle core biopsy to diagnose pulmonary hemangiomas is discussed with the clinical, radiologic and pathological features of this case and a review of literature.

1. Introduction

Hemangiomas are common benign vascular tumors of infancy and childhood that are frequently located in the skin, subcutaneous tissue, and liver [1]. Although they can present in any organ system, primary pulmonary hemangiomas, involving either the parenchyma or the airways, are extremely rare [2].

Extensive search of the English literature reveals only a few cases of pulmonary hemangiomas. The diagnoses were all made through wedge resection, segmentectomy, or lobectomy with or without intraoperative frozen section examinations. Here, we report one additional case of pulmonary capillary hemangioma which was diagnosed by needle core biopsy. The feasibility of using needle core biopsy to diagnose pulmonary hemangiomas will be discussed with a literature review.

2. Case report

2.1. Clinical presentation

A 42 year old woman with a 5-pack-year smoking history while in college and no other significant past medical histories had an incidental nodule in the left lower lobe on chest X-ray performed at another hospital. Clinical follow-up at our institution revealed a left lower lobe pulmonary nodule measuring 1 cm in the greatest dimension with irregular borders and central fluid attenuation suggestive of a cystic component on a computed tomography (CT) scan (Fig. 1). No air-fluid level was seen to indicate cavitation or necrosis. This lesion is closely associated with an interlobular septum. No definite feeding or draining vessels had been identified. This pulmonary nodule appeared to be stable in size and appearance through a 9 month interval. There was no evidence suggestive of pulmonary hypertension clinically or radiographically.

In consideration of the irregular borders of this nodule on CT scan and the smoking history, a CT-guided percutaneous lung biopsy was performed to rule out the possibility of a malignant process. Patient experienced significant but transient hemoptysis after the procedure.

2.2. Histopathologic findings

Microscopically, five pieces of lung tissue were present, one of which was completely normal lung parenchyma. The remaining 4 tissue core fragments showed partial or complete involvement by a discrete and marked proliferation of thin-walled capillary vessels filled with red blood cells (Fig. 2A). Lesional tissue measures 5 mm in the longest dimension. The cells lining the vascular channels were cytologically bland and showed no mitotic activity (Fig. 2B); and immunohistochemically were strongly positive for ERG (Fig. 2C; clone: EP111, EPITOMICS, Burlingame, CA) and negative for the lymphatic endothelial marker, podoplanin (clone: D2-40, Dako, Carpinteria, CA). Immunohistochemical staining of TTF-1 was only positive in rare entrapped pneumocytes but negative in the lesional nuclei (Fig. 2D; clone: 8G7G3/1, DAKO, Carpinteria, CA).

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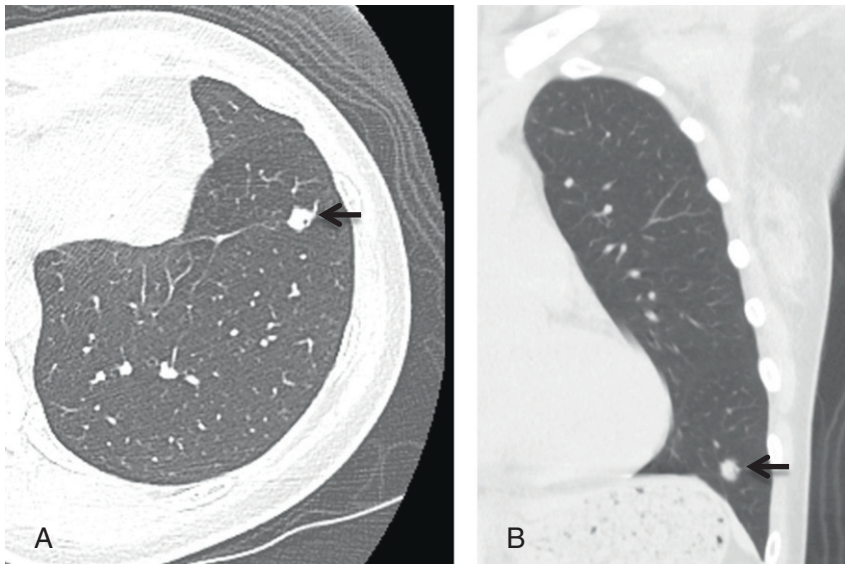

Fig. 1. CT images of the axial (1A) and coronal (1B) planes show a single, 1.0 cm left lower lobe pulmonary nodule with irregular borders and central fluid attenuation (arrow).

The capillary proliferations appeared to be adjacent to a bronchovascular bundle (Fig. 3A), however no obvious involvement or invasion of the bronchovascular wall was appreciated under high magnification (Fig. 3B and C). Iron stain did not reveal significant hemosiderosis in the form of either hemosiderin granules within alveolar macrophages or extracellular hemosiderin deposits in alveolar septa. In addition, there was no inflammation, fibrosis, or granulomas identified.

Based on the histomorphologic features, along with the clinical and radiologic findings, a diagnosis of solitary pulmonary capillary hemangioma was rendered.

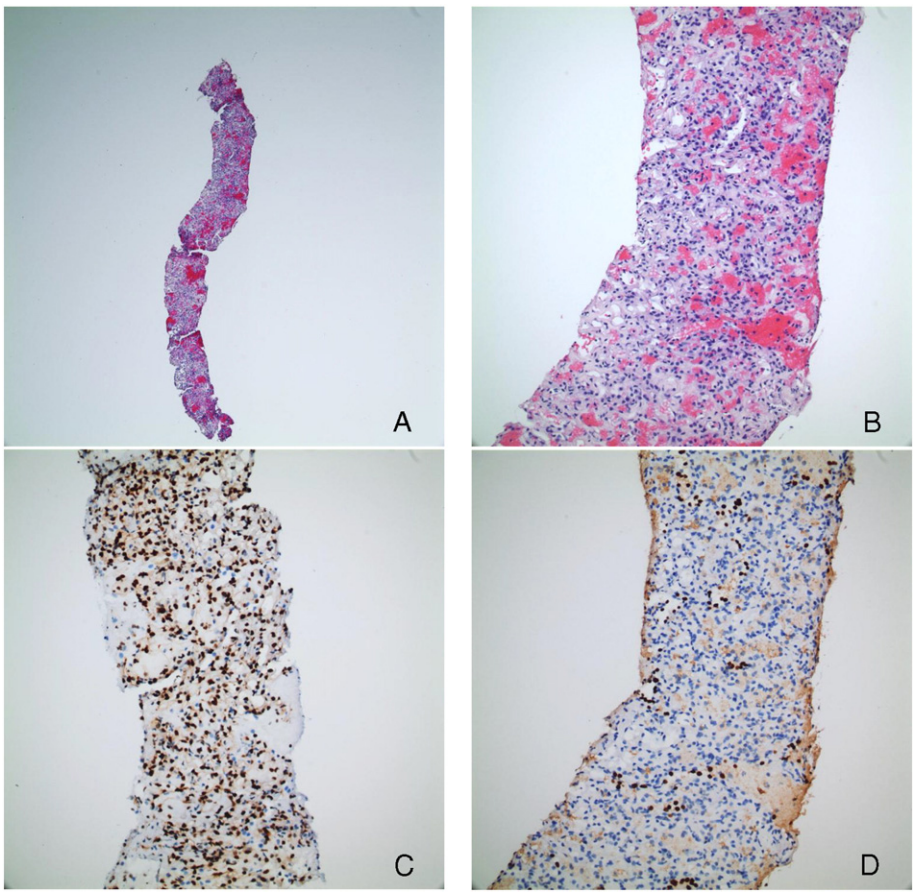

Fig. 2. Microscopic images of the lesion show marked proliferation of thin-walled capillary vessels (2A) with bland cytology and no mitosis (2B). The cells lining the vascular channels are positive for ERG (2C) and negative for TTF1 (2D).

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