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Pulmonary cavernous hemangioma: a case report

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Abstract We report a rare case of pulmonary cavernous hemangioma in a 51-year-old female. A computed tomographic scan of the chest showed an ill-defined mass measuring 2.3 cm × 2.2 cm in the right lower lobe. Surgical resection was performed and postoperative histological examination revealed cavernous hemangioma. We reviewed the clinical features and therapeutic methods of hemangioma.

Key words pulmonary cavernous hemangioma; operation; prognosis

Cavernous hemangiomas are frequently located in the liver, skin, and subcu-taneous tissues. Although they can affect any organ, cavernous hemangiomas rarely occur as a primary tumor in the lung. We reported a rare case of a pulmonary cavernous hemangioma and review the clinical features and therapeutic methods of hemangioma.

Case report

A 54-year-old female with the right chest discomfort, intermittent cough and sputum for 4 months on a regular checkup. A computed tomographic (CT) scan of the chest showed an ill-defined mass measuring 2.3 cm × 2.2 cm in right lower lobe with clear boundary and homogeneous density. The CT value was 57 Hu. Because lung cancer could not be ruled out, right thoracotomy with an anterior axillary approach was performed to obtain a definitive diagnosis in February 2011. A dark red encapsulated cystic tumor measuring 2.2 cm × 2.0 cm × 2.0 cm identified on the surface of right lower lobe, which was easily divided. Intraoperative frozen section indicated benign tumor. Postoperative histological examination revealed hemangioma. The expansion of thin-walled vessels can be found microscopically, pipe wall was composed of flat endothelial cells, the cavity filled with blood, as shown in Fig. 1. The cells lining the inner lumen were stained with anti-CD34 antibody, which is an immunohistochemical marker of vessels, TTF-1 was positive in pulmonary tissues and CD31 was positive in vessels. We also detected CK8/18 in a few glands, CR–, D2-40–, the positive incidence of KI-67 was less than 10%, as shown in Fig. 2 and 3. Final diagnosis was pulmonary cavernous hemangioma (PCH). The postoperative course was uneventful, and no recurrence for 40 months after the surgery.

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Discussion

Pulmonary cavernous hemangioma is a kind of congenital benign tumor caused by vascular malformation which lack of specificity with low morbidity [1]. Bouer firstly reported a death case since rupture of pulmonary cavernous hemangioma in 1936. Janse accomplished the resection of multiple cavernous hemangioma in 1944. It most commonly seen in the skin, subcutaneous, muscle and liver, kidney, skeleton, and bladder. Cavernous hemangioma, a relatively uncommon variant, is histologically composed of tangles of capillaries or widely dilated vascular channels. It rarely occurs as a primary tumor of the lung, the patients may have the hereditary hemorrhage telangiectasia [2–3].

Most of PCHs showed solitary or multiple nodular lesions with no characteristic features. It may caused obstructive pneumonia or pulmonary atelectasis when located in bronchi. The mass in X-Ray showed the smooth margin and distinct boundary in uniformly density with phlebolith [4], the form of phlebolith is characteristic. In some cases, the chest CT scan showed tiny calcifications in the mass. Enhanced scans showed mild-to-moderate reinforcement, the CT value was 30–60 Hu, delay scans revealed isodensity or slightly high density. However, Enhanced scans may not obviously because of the slowly blood flow velocity in PCH without large artery or obvious Arteri-ovenous shunt [5]. The most effective diagnosis for PCH is considered to be DSA and fiberoptic bronchoscopy, but the higher haemorrhagic risk reduce the practicability. All cases were diagnosed by intraoperative

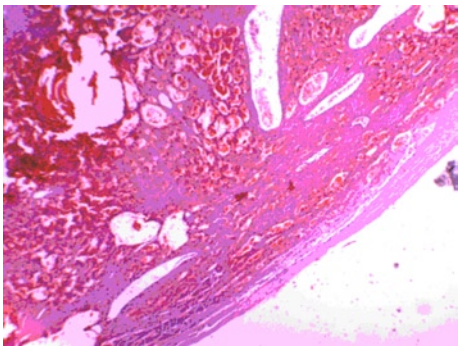

Fig. 1 Cavernous hemangioma (HE staining × 10)

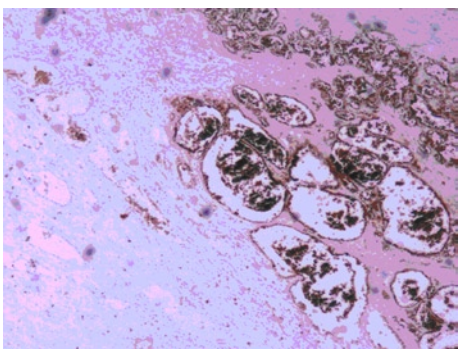

Fig. 2 Immunohistochemistry staining showed high endothelial cells positive for CD31 (× 10)

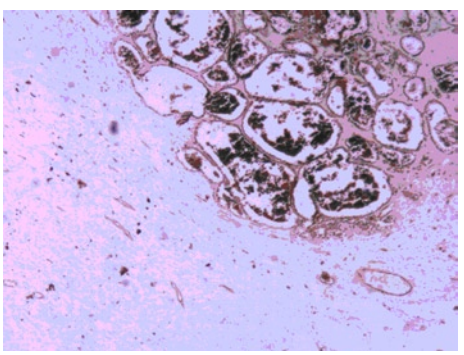

Fig. 3 Immunohistochemistry staining showed high endothelial cells positive for CD34 (× 10)

or postoperative examination. Microscopic examination revealed a nonencapsulated but well circumscribed nodule comprising big, dilated vessels lined with squamous endothelium and filled with blood, around the sinus were few fibrous tissue interval and lymphocyte, the space was filled with RBCs and phagocytic cells of Hemosiderin particles [4]. It showed a strong positivity to CD31, CD-34 and FVⅢ-Rag as the tumor which stem from vascular endothelial cell [6].

The most effective treatment for PCH is considered to be surgical resection. Being differ from other lung mass, the rupture of tumor may lead to the hemorrhage or hemoptysis, so early operation is advocated after confirmed [7–8]. In addition, communicating branches exit between PCH and vessels around, massive hemorrhage may happened when operation, the chosen of surgical method depend on the location and the size of the lesion, segmentectomy or lobectomy of lung should be referenced for the tumor which is located in central or with large measure [9]. Wedge resection or enucleation is favored which is located in periphery [6]. Some other choices for treatment have been reported, such as interventional vascular embolization, radiotherapy, α-interferon, etc. But evaluation is unsatisfactory generally [10–11]. PCH has good prognosis as the benign tumor, and recurrences after complete surgical resection have not been reported so far.

Conflicts of interest

The authors indicated no potential conflicts of interest.

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