Alveolar Adenoma Resected by Thoracoscopic Surgery

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Introduction

Alveolar adenoma is a benign tumor of the lung with distinctive histological features, which is usually detected as well-defined solitary pulmonary nodule in chest X-ray or computed tomography (CT) scan. We report a new case of this rare tumor and its clinical histopathologic features, to make a differential diagnosis with other rare lung tumors.

Case Report

A 48-year-old woman with no history of smoking or alcoholism was admitted to our hospital because of a solitary pulmonary nodule revealed in chest X-ray during a regular medical examination. Subsequently, CT scan confirmed a 4.0 cm mass in the right lower lobe with no contrast impregnation of the mass (Fig. 1). The results of the physical examination were unremarkable. After the following complementary examinations (Brain Magnetic Resonance Imaging [MRI] Scanning/Pulmonary Function Test [PFT]/Bronchofiberscope/Electrocardiogram/Abdominal CT Scan), the patient underwent right lower lobectomy by thoracoscopic surgery, since wedge resection could not be taken because the mass was close to the basal artery. Frozen sections were not diagnostic. The tumor had a soft, gelatinous, greyish cut surface and measured 4.0 cm in size. Pathologic examination showed a multicystic tumor with well-defined borders. The cysts were lined by epithelial cells with a cuboidal or hobnail appearance and containing granular material in the lumen. The tumor was negative against synaptophysin, chromogranin and Ki-67, markers seen in carcinoid tumor and positive staining of type 2 alveolar epithelial cells for thyroid transcription factor-1 (TTF-1), cytokeratin (CK) and cytokeratin 7 (CK7). The postoperative histopathologic finding confirmed the diagnosis of alveolar adenoma (Fig. 2). The patient remains asymptomatic and there has been no recurrence during the 48-month postoperative follow-up.

Discussion

Alveolar adenoma is a benign tumor of lung with distinctive gross and microscopic findings, a total of 31 cases have been reported to date.1–5 It is usually found in asymptomatic patients incidentally. The age range of patients is 34 to 74 years, occur in females more often than in males, the female to male ratio is 2:1.1) A few iconographic studies have been conducted and the findings showed these lesions have characteristics consistent with benign nodules, but nonspecific. Most alveolar adenoma were identified incidentally as a
Fig. 1  The chest X-ray (A) and computed tomography (CT) scan (B–D) showing a 4.0 cm well-defined solitary mass in the right lower lobe with no contrast impregnation of the mass (arrow).

Fig. 2  Haematoxylin and eosin stain; original magnification, × 100 (A). Positive staining of type 2 alveolar epithelial cells for thyroid transcription factor-1 (TTF-1) (B), cytokeratin (CK) (C) and cytokeratin 7 (CK7) (D).
well-defined solitary nodule in the peripheral lung with an average size of 4.5 cm in diameter (0.6–9.8 cm) according to English medical literatures, but sometimes alveolar adenoma coexists with lung carcinoma. The clinical pathologic characteristics include the growth of type 2 alveolar epithelial cells with no signs of malignance. It is difficult to make a correct preoperative or intraoperative diagnosis, but can be confirmed after a resection based on its unique histopathologic characteristics.

The differential diagnosis of alveolar adenoma contains papillary adenoma, atypical adenomatous hyperplasia, sclerosing hemangioma and hamartoma. Papillary adenoma are composed of distinctive papillae covered by uniform cuboidal to columnar cells and heterogeneous epithelial component, which is important in making differential diagnosis. The basic histopathologic finding of atypical adenomatous hyperplasia is focal proliferation of alveolar cells spreading along the preexisting alveolar framework, whereas alveolar adenoma lack cellular atypia. Sclerosing hemangiomas may also consist of type 2 alveolar epithelial cells, but they contain blood and not eosinophilic material. The TTF-1 expression observed in alveolar adenoma can distinguish alveolar adenoma from sclerosing hemangiomas. The pulmonary hamartoma is seen microscopically to be composed mostly of benign cartilage on the right that is jumbled with a fibrovascular stroma and scattered bronchial glands on the left. A hamartoma is a neoplasm with a vaguely lobulated appearance that is composed of tissue elements normally found at that site, but growing in a haphazard mass.

The curative treatment for alveolar adenoma is surgical resection. It has been reported alveolar adenoma resected by thoracoscopic surgery. But it measured only 8 mm in diameter.

No recurrence has been reported after resections, so it should be histological benign.

Conclusion

Alveolar adenoma is a rare benign tumor of the lung. Because of its benign histological characteristic, thoracoscopic lobectomy is curative for this tumor, although it is huge in size.

Disclosure Statement

All authors have no conflict of interest.

References