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Case report

Primary acinic cell carcinoma of the lung with psammoma bodies: A case report and review of literature

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ABSTRACT

Salivary gland-type tumors are rare in the lung. Primary acinic cell carcinoma of the lung is extremely rare. Here, we report a case of primary acinic cell carcinoma of the lung with prominent psammoma bodies. A 31-year-old man came to our hospital with a tumor in the basal segment of the lower lobe of the right lung. The tumor tissue displayed solid, acinar, or microcystic structures at different regions. A large amount of psammoma bodies were scattered in more than half of the tumor. The majority of the tumor cells were round or polygonal in shape, with abundant acidophilic granular or vacuolated cytoplasm. The results of tumor tissue tests were positive for periodic acid Schiff (PAS), broad-spectrum cytokeratin, and cytokeratin 7 staining, but negative for P63, TTF-1, CD56, synaptophysin, HMB45, and PR staining. Based on the clinical information, histological features, and the immunohistochemical staining profile, the tumor was diagnosed as a primary acinic cell carcinoma of the lung. This is the first report of primary acinic cell carcinoma with prominent psammoma bodies in the lung.

1. Introduction

Salivary gland-type tumors are rare tumors in lung [1]. In malignant salivary gland-type tumors of lung, mucoepidermoid carcinomas, adenoid cystic carcinomas, and epithelial-myoepithelial carcinomas are relatively common. Mucoepidermoid carcinomas or adenoid cystic carcinomas comprise less than 1% of all lung tumors, respectively [1], but acinic cell carcinoma is extremely rare. Since the first case described by Fechner in 1972 [2], less than 20 cases have been reported in the literature [2–9]. The rarity of this tumor may lead it to be confused with other primary lung tumors and incorrectly diagnosed. We report a case of primary acinic cell carcinoma of the lung with prominent psammoma bodies. The presence of psammoma bodies has not been described in previous reports of primary acinic cell carcinoma of the lung.

2. Clinical history

A 31-year-old Chinese man went to the First Affiliated Hospital of China Medical University, Shenyang in March 2016 with complaints of cough and expectoration for two months. Computed tomography (CT) revealed a soft tissue density mass that had protruded into the bronchial lumen of basal segment of lower lobe of right lung (Fig. 1). The bronchus was truncated, the distal lung showed atelectasis, the bilateral hilar was not enlarged, and no enlarged lymph nodes was found in the mediastinum. The tumor mass was solid with a lobular structure at the periphery. The density of the tumor was not uniform. The CT value was about 46–73 HU. The tumor was resected using thoracoscopic lobectomy. The patient had no history of salivary gland neoplasm or prior head and neck surgery. The study was approved by the China Medical University Institutional Review Board for human studies. Written informed consent was obtained from the patient for use of his clinical records in this study.

3. Materials and methods

The resected tumor tissues were fixed with 10% neutral-buffered formalin and embedded in paraffin blocks. Tissue blocks were cut into 4-μm sections. The histological evaluation was performed on hematoxylin and eosin stained sections. The tumor tissue sections were immunostained with primary antibodies against broad-spectrum cytokeratin (CK), CK7, epithelial membrane antigen (EMA), p63, thyroid transcription factor-1 (TTF-1), S-100, progesterone receptor (PR), vimentin, CD56, synaptophysin, HMB45, and Ki67. All antibodies were purchased from

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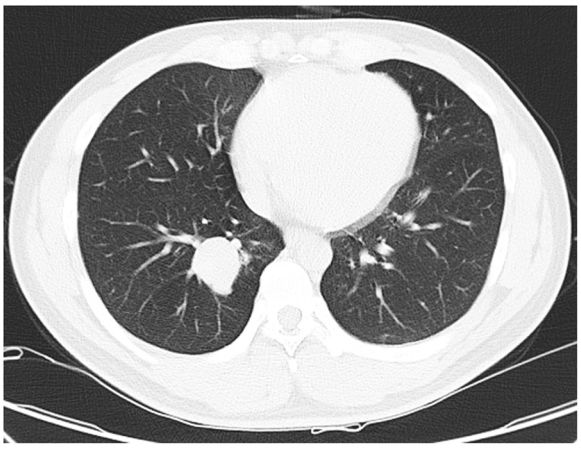

Fig. 1. Computed tomography examination of the lung. Computed tomography scan displayed a soft tissue density mass tumor located at basal segment of lower right lobe of the lung.

Maixin, Fuzhou, China. After incubation with primary antibody, the detection of antibodies was accomplished using the streptavidin-peroxidase method. Tumor sections were also stained with periodic acid-Schiff (PAS).

4. Results

4.1. Gross features

The tumor was located in the basal segment of the lower lobe of the right lung. Gross pathologic examination revealed that the tumor was round, about 4.5 cm in diameter and very close to the pleura. The cut surface of the tumor was solid, soft, and gray-white with no apparent hemorrhagic or necrotic foci.

4.2. Microscopic features

The tumor tissue grew closely under the mucosa of the bronchus. The mucosa contained squamous cell metaplasia at some region. Necrosis was observed at the edge of the tumor tissue. The tumor displayed different growth patterns (Fig. 2). Part of the tumor was solid and composed of sheets of large, cohesive cells. The sheets of tumor cells were separated into lobular structures by thin fibrovascular septae. In addition to the solid areas, some parts of the tumor contained acinar or microcystic structures. Eosinophilic secretion could be observed in the lumen of some of the glandular or microcystic structures. Interestingly, a large amount of psammoma bodies and hyaline globules were scattered in more than half the area of the tumor. They were located in the centers of small solid tumor cell nests or glandular structures, and varied

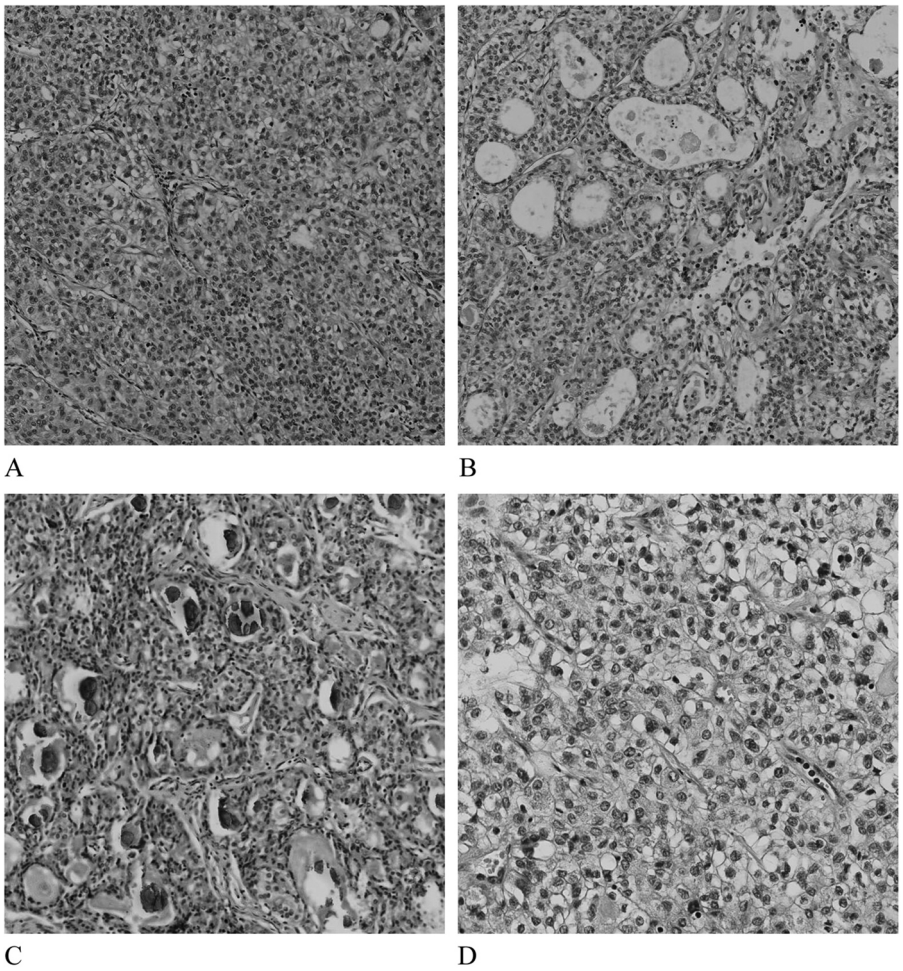

Fig. 2. The histological features of the present acinic cell carcinoma of the lung. A. The sheets of tumor cells were separated by thin fibrovascular septae (hematoxylin and eosin [H&E] × 100). B. Tumor cells were composed of acinar or microcystic structures. Eosinophilic secretion could be observed in the lumen of some glandular or microcystic structures (H&E × 100). C. Plenty of psammoma bodies and hyaline globules were located in the centers of tumor cell nests. Some hyaline globules were calcificated in the center (H&E × 100). D. The sheets of tumor cells had a clear cell or signet-ring appearance. Small nucleoli can be observed in some cells (H&E × 200).