Primary pulmonary mucinous (colloid) adenocarcinoma

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Abstract We report a rare case of primary pulmonary mucinous (colloid) adenocarcinoma (MC) in a 79-year-old man. A computed tomographic scan of the chest showed a round, well-defined nodule in his right upper lobe that enlarged slowly over 12 months from 1.7 cm to 2.0 cm. Wedge resection of the right upper lobe was performed to obtain a definitive diagnosis by video-assisted thoracoscopic surgery. Macroscopically, the cut surface showed that the nodule was well demarcated and filled with a yellowish-white gelatinous substance. The postoperative histological diagnosis was primary pulmonary MC.

Key words Mucinous (colloid) adenocarcinoma · Lung tumor · Variant of adenocarcinoma

Introduction

Primary pulmonary mucinous (colloid) adenocarcinoma (MC) is rare. MC is described as a variant of adenocarcinoma by the latest edition of the World Health Organization (WHO) classification of lung neoplasms. We report a case of primary pulmonary MC that consists mostly of mucin and is histopathologically similar to the tumor of the same name in the gastrointestinal tract.

Case report

An asymptomatic 79-year-old man was found to have a chest roentgenogram showing an abnormal shadow in the right middle lung field on a regular checkup in July 2005. A computed tomographic (CT) scan of the chest showed a round, well-defined, homogeneous nodule measuring 1.7 cm (Fig. 1). His clinical status was unremarkable. The results of clinical examinations and routine laboratory tests were within normal limits except for an elevated serum level of carcinoembryonic antigen (CEA) (14.7 ng/ml).

Radiologically, the lesion was suspected to be a benign lung tumor such as a hamartoma or a metastatic lung tumor. Because contrast-enhanced abdominal and pelvic CT scans, gastroduodenoscopy, and fiberoptic colonoscopy revealed no apparent tumor, we carefully observed the lesion for 12 months, but chest CT in July 2006 showed the nodule had slightly increased in size (Fig. 2). Positron emission tomography (PET) with 18F-fluorodeoxyglucose (FDG) showed little activity in this lesion. No apparent tumor mass was detected by abdominal and pelvic CT, brain magnetic resonance imaging (MRI), and FDG-PET.

Because a malignant tumor could not be ruled out, video-assisted thoracoscopic surgery and wedge resection of the right upper lobe with sufficient surgical margin was performed to obtain a definitive diagnosis. The cut surface showed that the nodule was well demarcated and filled with a yellowish-white gelatinous substance (Fig. 3). Based on a histological analysis of an
intraoperative frozen section of the resected nodule, noninvasive adenocarcinoma was diagnosed. Standard anatomical upper lobectomy was not performed because of the patient’s advanced age and because the tumor was considered to be a low-grade malignancy.

Histopathologically, the tumor consisted of abundant mucin filling the alveolar spaces and some tumor cells floating in mucin pools. Columnar mucinous epithelial cells lined thickened alveolar walls (Fig. 4). Immunohistochemically, tumor columnar mucinous epithelium lining the alveolar wall and the floating tumor cells were positive for CEA, cytokeratin 7 (CK7), and thyroid transcription factor-1 (TTF-1), whereas cytokeratin 20 (CK20) was negative (Fig. 5). Postoperative histopatho-