Mucoepidermoid carcinoma of the lung
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Patient: 40 years, male

Clinical History:
A 40-year-old man suffered from productive cough and mild dyspnea for one month. Physical examination showed decreased breathing sound and localized crackles at his right basal lung.

Imaging Findings:
Chest radiographs revealed a mass at right pulmonary hilum with suspicious atelectasis of right middle and lower lobes (Fig.1). Chest CT scan showed a mass at right pulmonary hilum, extending along and within intermediate, right middle and lower lobe bronchus, and a necrotic lymph node at subcarinal region (Fig. 2). Associated obstructive pneumonia with partial collapse of right middle and lower lobes was noted. Fiberbronchoscope showed a mass over the orifice of right middle lobe. Transbronchial biopsy was done and histology revealed atypical epithelial proliferation. Brain CT and bone scan showed no distant metastasis. The patient received right middle and lower bilobectomy and mediastinal lymph node dissection. Grossly, the tumor (2.8×2.5×2.2 cm) was well-defined, yellowish to whitish color, and soft to elastic (Fig. 3). The tumor invaded the intermediate bronchus, middle and lower lobar bronchi. One plaque-like tumor was noted at the intermediate bronchus and bifurcation of middle and lower bronchi. The lumen of middle and lower lobar bronchi was partially obstructed by the tumor. Obvious obstructive pneumonia was seen peripheral to the hilar area. Most dissected hilar lymph nodes were involved by the tumor. Microscopically, the tumor exhibited a high-grade mucoepidermoid carcinoma of lung (Fig. 4). It composed of anaplastic tumor cells with pleomorphic nuclei. Marked hemorrhage and necrosis were seen. The tumor invaded from the submucosa area through the bronchial wall into peripheral soft tissue, lung parenchyma and regional lymph node with section margin involvement. The patient expired 18 months later after the initial diagnosis.

Discussion:
Mucoepidermoid tumor, first reported by Smetana et al. in 1952 [1], is an uncommon airway tumor, accounting for only 0.1% to 0.2% of the primary lung malignancies [2]. The tumor is believed to be originated from the minor salivary glands lining the tracheobronchial tree [3]. It is composed of mucinous-secreting, epidermoid, and intermediate cells [3]. Patients with mucoepidermoid carcinoma range in age from 4 to 78 years, but nearly half are younger than 30 years [3,4]. There is no gender bias. The symptoms are frequently related to irritation or obstruction of the tracheobronchial tree, therefore recurrent episodes of pneumonia, dyspnea, asthma, cough, and less commonly, hemoptysis are the most frequent presenting complaints even in the 20 to 30% of patients who are
asymptomatic [5]. In our case, productive cough and dyspnea were the major symptoms. On chest radiographs, the tumor frequently appears as a central mass with or without postobstructive pneumonia and/or peripheral atelectasis or as a solitary pulmonary nodule [5]. Yousem and Hochholzer [3] revealed radiographs of 58 patients with tracheobronchial mucoepidermoid carcinoma, presenting with a solitary nodule or mass in 41 cases (71%) and pneumonic consolidation in 16 cases (28%); one case showed no abnormality on chest radiographs. Prediction of the endoluminal location of the tumor is plausible at CT scan. On CT, the mass appears as a smooth surfaced, mildly enhancing, endobronchial mass which confirms to the branching airway [5]. High-grade lesions may have a more ragged, invasive appearance. Punctate calcification can be seen in up to 50% of lesions [5]. The tumors usually cause airway disease, such as distal bronchial dilatation with mucoid impaction, postobstructive pneumonia, air trapping, subsegmental atelectasis. Similar findings were noted in our case, but no punctate calcification was noted. The tumors can be classified as low-grade or high-grade mucoepidermoids on the basis of their histologic appearance [6]. Low-grade malignant tumors are mainly cystic components and microscopic invasion into pulmonary parenchyma is common. These tumors are smooth polypoid endobronchial masses, well confined within the bronchial wall. High-grade tumors usually show areas of solid growth. Atypia, mitotic activity and necrosis are characteristic and regional lymph node involvement is more frequent. These tumors are irregular in shape and focal parenchymal involvement is common. In our case, the tumor revealed obvious hemorrhage and necrosis. Findings of CT scan well delineated the high-grade appearance of the tumor, such as irregular solid mass with parenchymal involvement and hilar lymphadenopathy. Low-grade mucoepidermoid carcinoma can be cured following complete resection. The 5-year survival rate accounts for 80%. High-grade carcinoma results in worse prognosis (5-year survival rate, 31%). Previous report indicated that survival correlated well with the presence of regional lymph node metastasis [7]. In conclusion, mucoepidermoid tumor is an uncommon airway tumor, which occurs most common in young adult. CT scan is a good imaging modality in evaluation endobronchial tumor and its extension.

**Differential Diagnosis List:** A high-grade mucoepidermoid carcinoma of lung

**Final Diagnosis:** A high-grade mucoepidermoid carcinoma of lung

**References:**

Smetana HF, Iverson L, Swan LL. Bronchogenic carcinoma: analysis of 100 autopsy cases. Milit Surg 1952;111:335-351. (PMID: 13002149)


Figure 1

Description: Origin:
Figure 4

Description:  Origin: