Primary Lung Mucoepidermoid Carcinoma: A Case Report

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Abstract
Primary salivary type lung cancers are exceptionally rare malignancies. Mucoepidermoid tumor is one of the salivary gland tumors which originate from submucosal glands of tracheobronchial tree. These are very slow growing malignant tumors. In this case report, we describe a case of a middle age female who presented with cough and breathlessness. Histopathologically she was found to have mucoepidermoid tumor originating from the trachea.

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Keywords: Bronchial mucoepidermoid carcinoma; Mucoepidermoid carcinoma; Lung cancer

Introduction

Mucoepidermoid carcinoma (MEC) of the lung is an extremely rare tumor that accounts for 0.1% to 0.2% of all primary lung tumors.[1, 2] The tumor is derived from the submucosal glands of the tracheobronchial tree and morphological homology with exocrine salivary glands.[2] These tumors commonly involve major and minor salivary glands, but lung involvement is quite uncommon. Complete surgical resection is associated with excellent prognosis.[7] In this report, we describe the case of a 42 year old middle age female who presented with chronic cough and an endobronchial lesion in the upper end of trachea which was diagnosed as mucoepidermoid carcinoma of the lung.

Case Presentation

A 42 year old female was admitted with worsening cough and intermittent breathlessness for 4 weeks. She had a no smoking history. The laboratory findings showed her white blood cell count as 12,000/ cmm, hemoglobin 10 g/dl, and C-reactive protein 3.25 mg/dl. She reported purulent sputum production with occasional streaks of blood in the sputum. There was no history of tuberculosis or tuberculosis exposure. She was tested tuberculin negative. Sputum smear and culture for acid fast bacilli (AFB) were negative. Her past medical history was not significant and her family history was noncontributory. Chest radiograph does not show any significant changes. CT-scan of the neck and chest was done and revealed a 1.5×1.5×0.9 cm lobulated intraluminal tracheal mass arising from the posterior tracheal wall at the level of upper manubrium. There was no evidence of lymphadenopathy. Flexible bronchoscopy showed a pedunculated tracheal mass (Figure 1) obstructing 50-60% of the trachea.

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Endobronchial biopsy showed (Figure 2) malignant epithelial neoplasm infiltrating the fibrous hyaline stroma. The neoplasm is composed of glandular structures lined by mucous secreting cells with interspersed stroma which has squamoid and clear cells with minimal mitosis which is consistent with the diagnosis of low grade primary salivary type lung cancer: mucoepidermoid carcinoma.

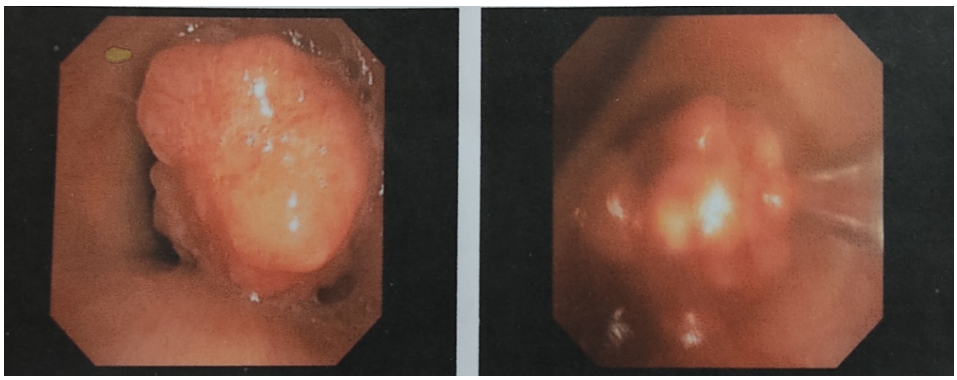

Figure 1. A 1.5×1.5×0.9 cm exophytic, pedunculated luminal mass with intact mucosa obstructing the trachea visualized during bronchoscopy.

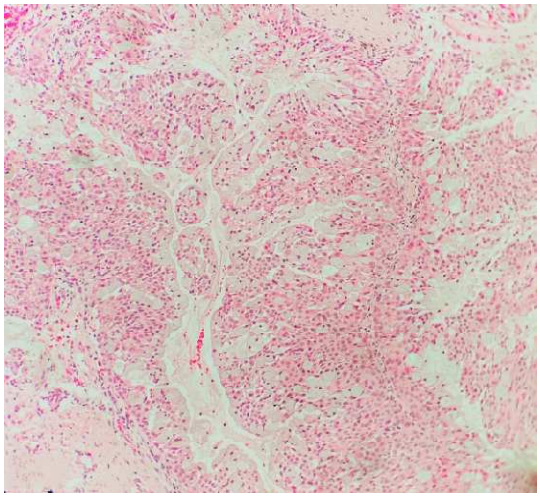

Figure 2. High power view (H & E): Multiple glandular structures lined by mucin producing cells in the background of stroma mixed with intermediate and clear cells consistent with mucoepidermoid carcinoma.

Discussion

Pulmonary mucoepidermoid tumor affects both males and females equally.[1] The median age of presentation is 40 years.[1,2] They commonly present with cough, dyspnea, hemoptysis, wheezing and pneumonia.[1,2] Most salivary-type lung cancers present as a mass in the trachea, carina or in a main stem bronchi and occasionally as a peripheral nodule.[3,4] In contrast to adenoid cystic lesions, mucoepidermoid tumors involve lobar and main stem bronchi more commonly than trachea and cause post-obstructive pneumonia and atelectasis.[4] The diagnosis is often delayed for more than a year due to slow growth, non-specific clinical presentations and subtle findings on image studies.[4,5] Chest radiographs are rarely helpful.[5] Axial CT typically shows non-spherical, smooth lobulated polypoidal mass associated with dilated distal bronchi, mucoid impaction and distal atelectasis.[5] At bronchoscopy, mucoepidermoid carcinomas of the trachea appear as pink, polypoid masses that can be confused with a carcinoid tumor and adenoid cystic carcinoma.[5] The diagnosis is made by histopathological analysis of the biopsy specimen which typically shows variable proportions of mucus-secreting cells, squamous cells, intermediate cells and intercellular bridges.[6] On the basis of pathological findings mucoepidemoid tumors can be categorized into low grade and high grade tumors.[6]

Mitoses, nuclear pleomorphism, and necrosis are usually absent or minimal in low-grade mucoepidermoid carcinomas and it rarely metastasizes to regional lymph nodes or distant organs.[6,7] Surgical resection is the mainstay of treatment and usually carries good prognosis. High-grade MEC carries a higher risk of distant metastasis and worse prognosis even with surgery.[2,3,7] Overall survival for primary salivary gland type lung cancer after surgical resection is excellent with 5 year and 10 year survival of 97.6% and 86.7% respectively.[8]

Conclusion

Primary pulmonary MEC represents a rare type of lung cancer. Patients with low-grade MECs, like the patient presented in this report, generally have a excellent prognosis after primary surgical resection.

Ethical approval

The authors have reported that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

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