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A Rare Case of Pulmonary Mucoepidermoid Carcinoma in an 81-Year-Old Male

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
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Conflict of interest: None declared

Patient: Male, 83
Final Diagnosis: Pulmonary mucoepidermoid carcinoma
Symptoms: Chronic cough
Medication: —
Clinical Procedure: —
Specialty: Pulmonology

Objective: Rare disease





Background: Lung mucoepidermoid carcinoma is a form of non-small cell lung carcinoma that originates from the submucosal glands of the tracheobronchial tree; it is rare and causes 0.1% to 0.2% of lung malignancies. In this article, we report on an occurrence of this condition in an 81-year-old male, which is rare occurrence in this age group. In this case, we found a history of smoking and asbestos exposure which might suggest that exposure to both of these factors can possibly increase the risk for this malignancy.

Case Report: An 81-year-old male presented with chronic cough and yellow sputum, associated with right upper back pain. The patient was a smoker of 30 packs per year and reported a history of asbestos exposure. He had past medical history of rectal cancer, but no previous history of salivary glands tumors. Physical examination was normal, laboratory investigations were unremarkable. Computed tomography chest showed endobronchial mass with post-obstructive atelectasis. Bronchoscopic evaluation revealed a whitish, endobronchial mass occluding the posterior segment of the right lower lobe. Biopsy showed benign squamous papilloma and malignancy was not excluded as only superficial parts of the mass were obtained. The decision was made to remove the lesion. A right lower lobectomy was done, and histopathology revealed a low grade mucoepidermoid carcinoma; immunohistochemical staining showed tumor cells positive for p40 and p63 supporting the diagnosis. No further adjuvant treatment was recommended, and follow-up imaging was planned for surveillance.

Conclusions: Mucoepidermoid carcinoma of the lung is a rare form of non-small cell lung carcinoma. Appropriate diagnosis requires correctly interpreted biopsy results along with immunohistochemical staining results.

MeSH Keywords: Carcinoma, Mucoepidermoid • Carcinoma, Non-Small-Cell Lung • Lung Neoplasms

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/911624>

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Background

Mucoepidermoid carcinoma of the lung is a form of non-small cell lung carcinoma that originates from the submucosal glands of the tracheobronchial tree [1]; it is a rare disease and causes 0.1–0.2% of lung malignancies. The usual age for presentation is in 3rd or 4th decade of life, ranging from 3 to 78 years. Previous literature has shown no association between lung mucoepidermoid carcinoma and smoking [2]. In our case report we describe a history of smoking and asbestos exposure, which might indicate that exposure to both of these factors can possibly increase the risk for this malignancy.

Case Report

An 81-year-old male presented for evaluation of chronic cough productive of yellow sputum associated with right upper back pain. He was given a course of oral antibiotics without significant symptomatic improvement. He was a previous smoker of 30 packs per year, worked as a janitor, and reported history of asbestos exposure. He had a past medical history of rectal cancer but denied a history of salivary glands tumors. Physical examination was normal, laboratory investigations, including complete blood count and comprehensive metabolic panel, were unremarkable. He underwent computed tomography chest with contrast that showed endobronchial soft tissue mass obstructing a posterior segmental branch of the right lower lobe with post-obstructive atelectasis (Figures 1, 2). The mass was amenable for bronchoscopy evaluation that revealed a whitish, hard, exophytic endobronchial mass totally occluding the posterior segment of the right lower lobe. A biopsy showed benign squamous epithelial papilloma with a background of chronic inflammation; the possibility of a well-differentiated malignancy could not be excluded as only superficial portions of the mass were biopsied. The decision was made to pursue excision of the lesion. The patient underwent right lower lobectomy with lymph node dissection. Histopathology revealed low grade mucoepidermoid carcinoma (Figures 3, 4). Immunohistochemical staining showed tumor cells positive for p40 and p63 (Figure 5) supporting the diagnosis; lymph nodes were negative for tumor cells, but one lymph node showed benign salivary gland inclusions. No further adjuvant treatment was recommended and follow-up imaging for surveillance showed no recurrence.

Discussion

Pulmonary mucoepidermoid carcinoma arises from tracheobronchial tree submucosa [1], and is attributed to 0.1–0.2% of lung malignancies [2]. The usual age for presentation is in 3rd or 4th decade, with age range of 3 to 78 years, but in our case the patient was 81 years old, which was a very rare age

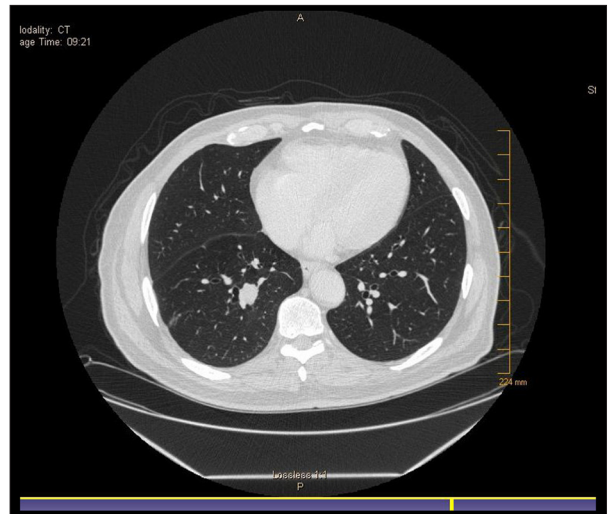


Figure 1. Computed tomography chest with contrast showing endobronchial mass in the right lower lobe.



Figure 2. Computed tomography chest with contrast showing the mass with post-obstructive atelectasis.

for presentation. Pulmonary mucoepidermoid carcinoma has similar gender predilection, and these tumors can be asymptomatic or present with cough, hemoptysis, dyspnea, chest pain, fever, and hoarseness [3–5]. In a case series analysis by Xi et al., the most common location was right inferior lobe (23%) followed by left upper lobe (19%) [3]. In our case report, the lesion was in the right lower lobe.

Imaging of pulmonary mucoepidermoid tumor may reveal well-circumscribed oval or lobulated mass arising within the bronchus with occasional calcification and sometimes post-obstructive pneumonia. Histology is comprised of mucin-secreting, intermediate and epidermoid cells without keratinization. It is classified as high grade or low grade. In low-grade tumors, cystic changes are dominant and solid areas are composed

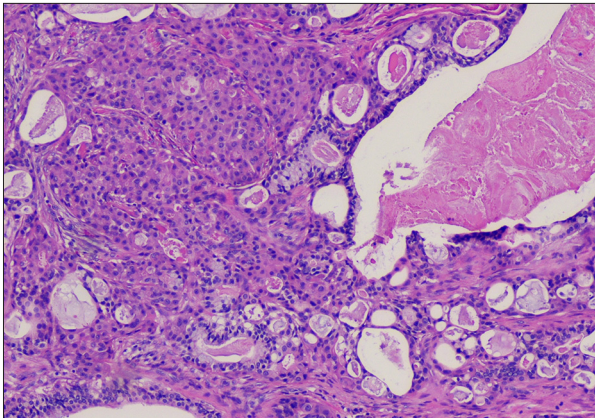


Figure 3. Hematoxylin and eosin stain showing squamous cells without keratinization and glandular structures with mucin in the lumen.

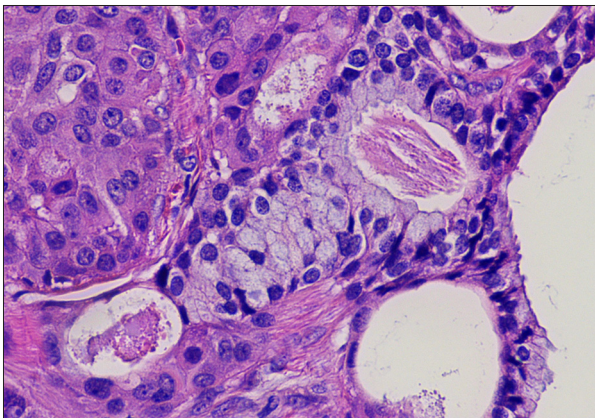


Figure 4. Hematoxylin and eosin stain with higher magnification showing squamous cells in left upper part and glandular structures in the middle and right sides of the image.

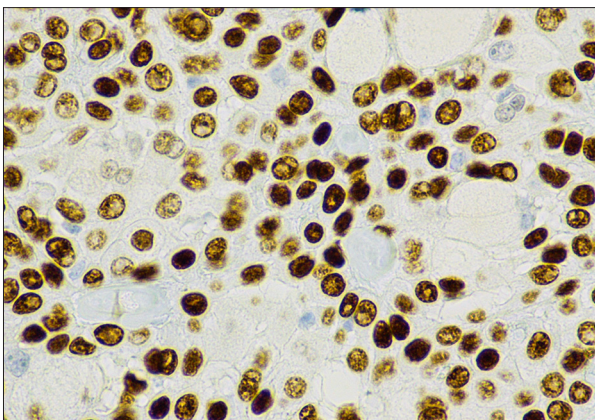


Figure 5. Tumor cells staining positive for p63.

of mucin secreting and columnar epithelium. High grade tumors are composed mainly of intermediate and squamoid cells with a lesser component of mucin secreting elements demonstrating nuclear atypia [4]. Our patient had a low-grade tumor. Pulmonary mucoepidermoid carcinoma has been reported to express p63, p40, and Muc5Ac, but not TTF-1. The MAML2 rearrangement is the main genetic event [5].

Epidermal growth factor receptor (EGFR) protein overexpression has been reported with mucoepidermoid carcinomas in Asian populations but most studies from western populations have found that EGFR mutations are absent in pulmonary mucoepidermoid carcinoma [6–9].

Prognostic factors include proportion of squamoid cells on tumor histology, tumor grade, age, lymph node metastasis and metastasis stage [3,10].

Complete surgical resection is the preferred treatment and has been associated with improved long-term survival; procedures utilized include lobectomy, sleeve lobectomy, bronchoplasty, and extended resection, and endobronchial intervention can be performed to relieve pre-operative post-obstructive pneumonia [3,11]; however, adjuvant treatment is not recommended for low grade tumors. Our patient did not receive adjuvant treatment and follow-up imaging for surveillance showed no recurrence. There is not enough evidence to support the efficacy of radiotherapy or chemotherapy although one case report showed response to a combination of carboplatin and paclitaxel in a patient with high grade tumor and lung metastasis [12]. Case reports described some response to tyrosine kinase inhibitor gefitinib in metastatic high grade mucoepidermoid carcinoma, and interestingly, no EGFR mutation was found in some of the patients who had response [6,7].

Conclusions

Mucoepidermoid carcinoma of the lung is a rare form of non-small cell lung carcinoma. Appropriate diagnosis of this malignancy requires correctly interpreted biopsies along with the immunohistochemical staining results. This case report might suggest that exposure to smoking and asbestos can possibly increase the risk for this malignancy. More studies and case reports are needed to prove this association.

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