Mucoepidermoid Carcinoma of the Lung Presenting as a Cavitary Lesion

Tawee Tanvetyanon MD*,
Vorachai Ratanatharathorn MD**, Juvady Leopairat MD***

** Department of Medicine, Loyola University Medical, Center and Hines Veteran Affair Hospital*
*** Department of Medicine, Ramathibodi Hospital, Mahidol University*
**** Department of Pathology, Ramathibodi Hospital, Mahidol University*

The authors describe a 62-year-old female patient who presented with a progressively enlarging cavitary lesion in the right upper lobe of the lung. Acid-fast bacilli were recovered from a bronchial washing fluid and identified as Mycobacterium tuberculosis. She received antituberculous therapy for 5 months without improvement in her clinical symptoms and chest radiograph. A lobectomy was performed and pathological review demonstrated a high-grade mucoepidermoid lung carcinoma with extensive central necrosis. Staging revealed metastases in her left adrenal gland, kidney and spine. High-grade mucoepidermoid carcinoma of the lung may present as a cavitary lesion. The presence of M. tuberculosis should not preclude clinicians from pursuing adequate diagnostic procedures for a possible malignant lesion.

Keywords : *Mucoepidermoid lung carcinoma, Pulmonary tuberculosis*

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Originating from minor salivary gland linings in tracheobronchial trees, mucoepidermoid lung cancer is a rare tumor composing of only 0.1-0.2% of primary lung malignancy[1,2]. Patients with mucoepidermoid lung cancer usually present with symptoms and signs of large airway irritation or obstruction such as cough, hemoptysis, wheezing, or recurrent pneumonia[3]. Radiographically, findings of a solitary pulmonary nodule, an endobronchial nodule, a central mass with post-obstructive pneumonia or atelectesis have been described[1,4]. In the present report, the authors describe a patient with a high-grade mucoepidermoid lung cancer who presented with a progressively enlarging pulmonary cavity.

Case Report

A 62-year-old woman presented to another hospital with a 3-month history of cough and weight loss. Chest radiograph demonstrated a cavitary lesion in the right upper lobe (Fig. 1).

Correspondence to : Tanvetyanon T, Division of Hematology/ Oncology, Department of Medicine, Loyola University Medical, Center and Hines Veteran Affair Hospital, Both in Maywood, IL, USA.

Her sputum examination was repeatedly negative for acid-fast bacilli. Brochoscopic examination revealed a nearly total occlusion of the right upper-lobe bronchus. The cytology from bronchial brush, and trans-bronchial needle biopsy however, were negative for malignancy or acid-fast bacilli. The patient was then referred to our facility.

She worked as a housewife and had no significant past medical history. Her last chest radio-

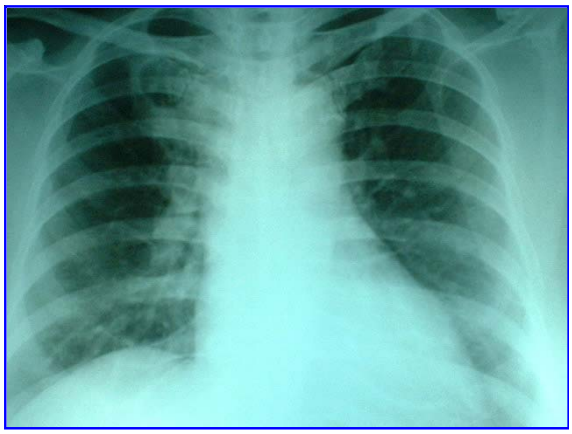
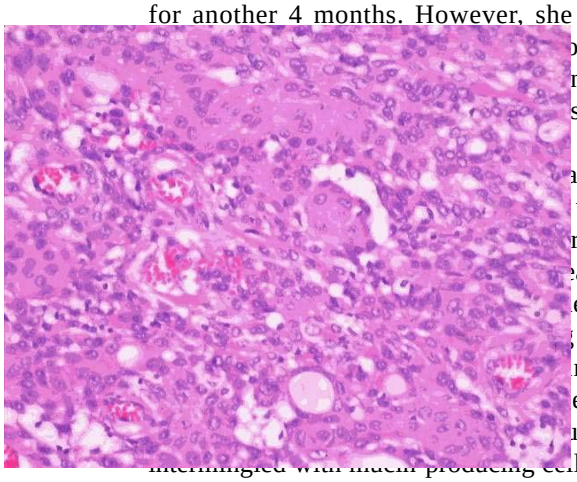


Fig. 1 Chest radiograph at presentation

graph from previous annual examination was normal. She had never smoked cigarettes or consumed alcohol. There was neither a history of tuberculosis nor a close contact to persons with active tuberculosis.

Physical examination revealed a decreased breath sound on the right upper lung field. No lymphadenopathy was appreciated and the rest of the physical examination was unremarkable. Her complete blood count and screening metabolic panel were normal. A repeated bronchoscopy showed a markedly stenotic right upper lobe bronchus and the bronchial washing fluid stained positive for acid-fast bacilli. Cytologic examination showed inflammation with a few atypical cells from degenerative changes with no evidence of malignancy. The patient was treated with isoniazid, rifampicin, pyrazinamide, and ethambutol without improvement of her symptoms. A chest radiograph taken 6 months after the first one and 2 months after treatment with antituberculous drugs showed a large cavity measuring 8 x 5 centimeters in the right upper lobe (Fig.2).

Culture later grew Mycobacterium tuberculosis sensitive to all of her current antituberculosis drugs. She was maintained on the same medication for another 4 months. However, she sustained a



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Pleomorphism and hyperchromatism with frequent mitoses indicative of malignancy were noted. The diagnosis of high-grade mucoepidermoid carcinoma with central necrosis, forming a cavity was established. Foci of metastases were present in one peribronchial lymph node. The surgical margin was not free of the tumor. There was no evidence of active tuberculosis. Tissue, fluid cultures and AFB tissue stains, were negative for tuberculosis.

A staging computerized tomography of the chest 2 weeks after surgery demonstrated multiple

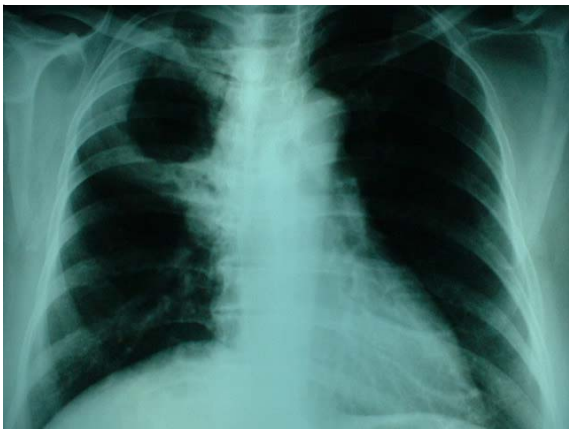

Fig. 2 Follow-up chest radiograph 2 months after anti-tuberculous treatment

Fig. 3 Chest radiograph on the day of bron choscopy showing air- fluid level

Fig. 4 Pathological findings from thoracotomy specimen

matted mediastinal lymph nodes, a large left adrenal mass, as well as a left renal mass. In addition, there was an osteolytic lesion associated with a focal mass at the T-12 spine. Platinum-based chemotherapy was given and antituberculous drugs were discontinued. The patient eventually developed progressive metastases and succumbed to her disease.

Discussion

The authors describe a patient with high-grade mucoepidermoid lung carcinoma who presented with a cavitary lesion on the chest radiograph. To our knowledge, mucoepidermoid lung carcinoma has never been described as a cavitary lesion on a chest radiograph before. This report also addressed the peril of complacency after identification of M tuberculosis from a cavitary lesion, which resulted in a long delay of proper diagnosis and treatment in our patient.

As an endobronchial tumor, mucoepidermoid carcinoma of the lung usually causes symptoms early in the course of disease, chest radiograph commonly shows a mass, peripheral atelectesis or post-obstructive pneumonia[4]. A complete atelectesis of unilateral lung has been reported[5]. In the presented patient however, the formation of a cavity due to tumor necrosis, which became progressively enlarged, was demonstrated. A wide range of primary and metastatic tumors to the lungs can cause cavitating lesions. In primary lung cancers, virtually all types including adenocarcinoma, squamous cell carcinoma, adenosquamous carcinoma, bronchoalveolar carcinoma, and anaplastic carcinoma may account for the lesion[6]. It is probable only because mucoepidermoid lung carcinoma is relatively uncommon that this radiological appearance has not been previously reported. Many organisms including Aspergillus and Mycobacteria may complicate these cavities[7,8]. However, the lung cavity in the presented patient most likely did not result from tuberculosis. Despite progression of the cavity lesion before operation, the pathological examination showed no evidence of tuberculosis and cultures from specimens obtained intra-operatively were all negative.

Differentiation of tuberculosis from lung cancer can be difficult due to a marked similarity in symptoms and radiographs, especially in endemic areas of tuberculosis such as Thailand. In addition, both conditions may co-exist since cancer patients are generally more susceptible to tuberculosis[9]. It appears that patients with co-existing pulmonary tuberculosis and lung cancer commonly received a delayed diagnosis of lung cancer and suffered an increased mortality[10,11]. Failure to improve after a short period of effective antituberculosis drugs should prompt clinicians to the possibility of underlying malignancy. In addition, cavity wall thickness may be useful as a clue. A thickness over 15 millimeters as in the presented case suggests malignancy[12].

On pathological examination, mucoepidermoid carcinoma consists of a mixture of mucus secreting cells, squamous cells and the intermediate cells, showing no definite differentiation[13]. Low grade and high grade are classified based on degrees of mitoses, nuclear pleomorphism, hyperchromasia, and cellular necrosis. Though more clinically aggressive when compared to the low-grade type, the high-grade mucoepidermoid carcinoma confers a better prognosis than that of other common bronchogenic carcinoma at equivalent stage[1]. Mucoepidermoid cancer can be diagnosed from both cytology and biopsy specimen. It remains unclear why biopsies failed to disclose the diagnosis in our patient. During cytologic examination however, a high index of suspicion is necessary to detect this type of tumor. Mucoepidermoid carcinoma specimen exhibits non-specific features including mucinous, squamous, intermediate cells, and some extracellular mucin[14].

In summary, the authors described a patient with high-grade mucoepidermoid lung carcinoma who presented with enlarging cavitary lesion. The presence of Mycobacterium tuberculosis unfortunately caused a delay in the appropriate management. Mucoepidermoid lung carcinoma is a rare tumor that can present as an enlarging cavitary pulmonary lesion. Presence of Mycobacterium tuberculosis in an atypical cavitary lesion should not mislead prudent clinicians from a timely investigation of possible malignancy.

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มะเร็งปอดชนิดมิวโคอิพิเดอมอยด์ที่ตรวจพบในช่องทรวงอก

ทวี ตันวิทยานนท์, วรชัย รัตนธราธร, ยุวดี เลี่ยวไพรัตน์

การนำเสนอรายงานผู้ป่วยหญิงอายุ 62 ปี ตรวจพบก้อนในช่องทรวงอกบริเวณปอดบนขวา ได้ส่องกล้องตรวจน้ำในปอดพบเชื้อวัณโรคมัยโคแบคทีเรีย ให้การรักษาด้วยยาต้านวัณโรคนาน 5 เดือน อาการไม่ดีขึ้น ก้อนในช่องอกโตขึ้นมาก จึงทำผ่าตัดกลีบปอด ผลตรวจชิ้นเนื้อทางพยาธิพบเป็นมะเร็งปอดชนิดมิวโคอิพิเดอมอยด์ ระยะของมะเร็งมีการแพร่กระจายไปอวัยวะอื่นๆ ได้แก่ ต่อมหมวกไต ไต และกระดูกไขสันหลัง ดังนั้นสรุปว่าการวินิจฉัยโรคปอดที่ตรวจพบเบื้องต้นว่าเป็นวัณโรคและให้การรักษาในระยะเวลานานแล้วไม่ดีขึ้น จำเป็นต้องคำนึงถึงโอกาสของการเป็นมะเร็งปอดด้วย