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Primary Pulmonary Lymphoma Presenting as the Lung Abscess: A Case Report

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Abstract

***Introduction:** The common presentations of primary pulmonary lymphoma are a lung mass and small nodules.*

***Objective:** To describe a case of primary pulmonary lymphoma who was initially diagnosed and treated as the lung abscess.*

***Case Presentation:** A 58-year-old Thai man presented with chronic cough and low-graded fever with weight loss for 10 kg in three months. The physical examination revealed only occasional wheezing at left lung. The blood tests included Hb 9.2 g%, WBC 5,600/mm^3, platelet 349,000/mm^3, FBS 237 mg%, LDH 390 U/L, HIV antibody – negative, CA-125 131.3 U/ml, CA19-9 13,538.4 U/ml, broncho-alveolar lavage- no AFB, no malignancy, sputum culture- no growth. The chest film and the computerized tomography of the chest showed one large cavitary lesion with air-fluid level at left lower lung field, 9.7x8.8 cm, lung abscess was likely. The lung biopsy via the bronchoscopy showed only chronic inflammation. He was treated with meropenem for 5 weeks, glipizide, and metforminand postural drainage without the clinical improvement. Left lung pneumonectomy was performed, an8-cm lung mass showed malignant lymphoma, diffuse large B cell. With the rituximab and CHOP therapy, he was in complete remission for four years. Then he came again with chronic fatigue for a few months due to marked pallor, and splenomegaly 3 fingerbreadths. The blood tests showed: Hb 5.5 g%, WBC 17,210/mm^3, platelet 66,000/mm^3, N 20.0%, L 74.0%, direct anti-globulin tests-positive 1+. His new diagnoses were chronic lymphocytic leukemia and Evans' syndrome andhe was treated with dexamethasone, cyclophosphamide and blood transfusion.*

***Conclusion:** In case of lung abscess with poor response to antibiotics, the surgical intervention should be considered, not only for the therapeutic purpose but also for the adequate tissue for pathological diagnosis.*

Keywords: *Primary pulmonary lymphoma, Lung abscess, Surgical intervention*

Introduction

Lymphoma is a malignant disease of the lymphoid tissue, and around halfof the patients have primary lesion originating outside the lymph node, so called the extra-nodal lymphoma (ENL). The common sites of ENL include the gastrointestinal tract, skin, central nervous systemand bone (1,2).

The lung is considered the very unusual site for ENL, viz., the primary pulmonary lymphoma (PPL) accounting for only 0.4% of all lymphoma (3), 3-4 % of ENL and 0.5-1 % of primary pulmonary malignancies (4). Only half of cases of PPL have lung symptoms which include cough with/without sputum, dyspnea, chest pain and hemoptysis (3). The most common pathology of primary lymphoma of lung is the extra-nodal zone B cell of the mucosa-associated lymphoid tissue (MALT) lymphoma (5), around 72.7 % (6).

The common computerized tomographic findings of PPL comprise a mass or mass-like consolidation larger than 1 cm 68%, nodules less than 1 cm, (7), chronic localized alveolar opacity (8), infiltrative diffuse opacities (9), atelectasis, or pleural effusion (10). The PPL that presents as a lung mass with cavitation (10)

or chronic lung abscess is very rare (11). Herein we reported a case of PPL whoinitially presented as the typical lung abscess.

Case Report

A 58-year-old Thai man complained chronic cough for 3 months, profuse yellow sputum without blood, low-graded fever and weight loss for 10 kg. The physical examination revealed the body temperature of 37.5 degree Celsius, P 85/min, occasional wheezing at left lung, no peripheral lymphadenopathy. The oxygen saturation was 95%. He was not a smoker.

The blood tests included Hb 9.2 g%, Hct 28.0 %, WBC 5,600/mm^3, N 76.9%, L 16.3%, platelet 349,000/mm^3, BUN 10.0 mg%, creatinine 0.79 mg%, cholesterol 95 mg%, albumin 3.2 g%, globulin 2.0 g%, total bilirubin 0.7 mg%, AST 15 U/L, ALT 12 U/L, alkaline phosphatase 49 U/L, FBS 237 mg%, LDH 390 U/L, HIV antigen/antibody – negative, CA-125 131.3 unit/ml (normal 0-35), CA19-9 13,538.4 unit/ml (normal 0-37), uric acid 5.1 mg%, broncho-alveolar lavage- no AFB, no malignancy, fluid ADA 3 IU/L, sputum culture - no growth.

The chest film showed a pulmonary inhomogeneous haziness at the left lower lung field and air-fluid level cavitary lesion, suggesting lung abscess. And the computerized tomography of the chest confirmed the large cavitary lesion with thick and nodular wall and air-fluid level at left lower lung field, measured 9.7x8.8 cm attaching to the medial and lateral visceral pleura, minimal left pleural effusion, no lymphadenopathy, lung abscess was likely. However the necrotic cancer was the second differential diagnosis.

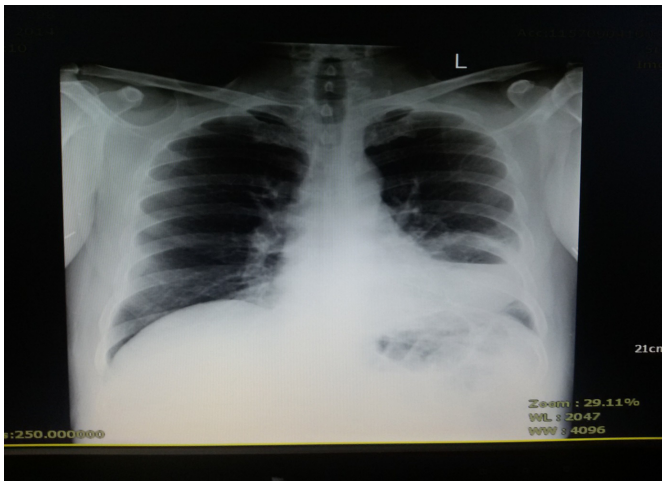

Fig 1. *The chest film showed a large cavitary lesion with air-fluid level in the left lower lung and preserved left costo-phrenic angle. Lung abscess is suggested.*

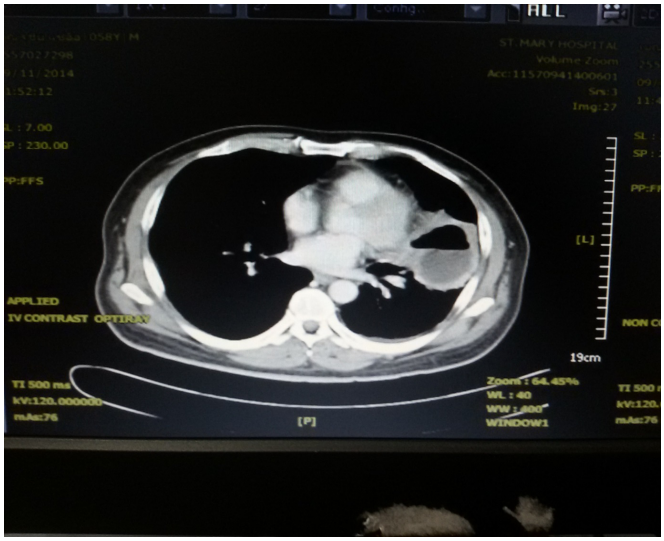

Fig 2. *The computed tomography of the chest showed a large cavitary lesion with air-fluid level in the left lung, the border of the lesion was close to the heart border. Lung abscess is suggested.*

The bronchoscopy was unremarkable and lung biopsy showed only chronic inflammation. He was clinically diagnosed as lung abscess and diabetes mellitus and treated with parenteral meropenem for 5 weeks, glipizide, and metformin.

Without significant clinical improvement in 3 weeks, the total left lung pneumonectomy with muscle flap, and left 5th rib resection was performed. The left lungmass, 8 cmwas grossly found involving the LUL, LLL and invading the major fissure. Its microscopic pathology showed malignant lymphoma, of which tumor cells were diffusely positive with LCA, CD20 but negative with AE1/AE3 and CD3, end of surgical resection and bronchial marginwere negative for malignancy. The inferior pulmonary and aortopulmonary window lymph nodes showed only reactive lymphoid hyperplasia but the resected pericardium revealed the involvement of lymphoma.

The ultrasonography of the abdomen was unremarkable. The bone marrow aspiration and biopsy were not studied. He was clinically diagnosed as having non-Hodgkin lymphoma, diffuse large B cell, stage IIBE with diabetes mellitus and treated with six courses of rituximab and CHOP regimen with glipizide and metformin. He could tolerate chemotherapy well and achieve the complete remission for four years later. Then he complained chronic fatigue for a few months. His physical examination revealed marked pallor, splenomegaly 3 finger breadths, firm consistency. The blood tests showed: Hb 5.5 g%, WBC 17,210/mm^3, platelet 66,000/mm^3, MCV 98.9 MCH 30.6 pg, N 20.0 %, L 74.0 %, direct anti-globulin tests-positive 1+, indirect anti-globulin test-negative, total bilirubin 0.7 mg%, indirect bilirubin 0.3 mg%. The chest film showed: post left 5th rib resection, total atelectasis of the left lung and mediastinum shifting to the left. He was clinically diagnosed as having chronic lymphocytic leukemia and Evans' syndrome. And he was treated with the intravenous dexamethasone, oral cyclophosphamide, and blood transfusion. He responded well to therapy, his hemoglobin concentration gradually increased.

Discussion

His clinical presentation was consistent with the classical manifestation of the chronic lung abscess: chronic cough, profuse sputum and a single air-fluid level cavitary lesion in the lung with an underlying diabetes mellitus although the left lung is involved less commonly than the right lung (12). Because of the poor response to parenteral antibiotics with drainage within three weeks and his symptoms lasting more than 3 months, he accepted the left lung pneumonectomy (12) leading to the correct pathological diagnosis of DLBCL of the lung and the pericardium that is much less common but much more aggressive than marginal zone B cell of mucosa-associated lymphoid tissue (MALT) lymphoma (13).

Our case was proved to be primary pulmonary NHL of the lung based on the lung mass pathologywhile other criteria were fullfilled: unilateral or bilateral pulmonary involvement with NHL; no evidence of mediastinaladenopathy; no evidence of extrathoracic disease by clinical staging work-up that includes thorough physical examination, computed tomographic scans of the chest, abdomen and pelvis and the examination of bilateral bone marrow biopsy specimens; no past history of lymphoma; evidence of extrathoracic disease up to 3 months after the initial diagnosis (6). Or PPL can be simply characterized by the lesion confining within the lung, and in the following 3 months (10). The very high level of CA19-9 used to be reported in pancreatic lymphoma (14,15), in a child with lymphoma besides pancreatic tumor (16). However it has never been mentioned in case with PPL as in our patient.

The treatments of lung abscess start with parenteral antibiotics and the postural drainage. The surgical invention will be considered if the cavity size is more than 2 cm (17)- 6 cm (12) and poor response to parenteral antibiotics within 3 weeks. The pneumonectomy is not only the appropriate treatment but also can provide the adequate tissue for pathological diagnosis. Otherwise the definite diagnosis could not be achieved.

After treatment with rituximab and chemotherapy, the patients with DLBCL may be risky to have subsequent primary malignancies more than the general population, particularly acute myeloid leukemia and thyroid carcinoma (18). But our case developed CLL with AIHA four years after remission from DLBCL, reversing to the fact that around 2-10 % of CLL patients transform to more aggressive lymphoma especially DLBCL, the so-called Richter syndrome (19).

Conclusion

A 58-year-old Thai man presenting with chronic fever with cough and single cavitary lesion with air-fluid level. He was treated with parenteral antibiotic as if he had had lung abscess. Without improvement in three weeks, pneumonectomy was performed and such lesion was found to be lymphoma. The surgical intervention seemed helpful not only for the

therapeutic purpose but also provision of adequate tissue for the definite diagnosis.

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