

Pulmonary Tuberculosis Mimicking Lung Cancer Metastases: A Case Report

Akciğer Kanseri Metastazını Taklit Eden Akciğer Tüberkülozu: Olgu Sunumu

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Abstract

Pulmonary tuberculosis (PTB) and lung cancer may mimic each other in the aspect of the clinical and radiological features, particularly. Early diagnosis and treatment is of utmost importance for improved survival in these patients. Herein, we present a 59 year-old case diagnosed with PTB, while being considered lung cancer metastases. In our case, PTB in the left lung and lung cancer (large cell neuroendocrine carcinoma) in the right lung were found simultaneously. After our case with sputum smear negative completed tuberculosis therapy, his daughter who had symptoms of cough and sputum was diagnosed with smear positive pulmonary tuberculosis. In smear AFB negative pulmonary tuberculosis cases, contact screen is important for early TB diagnosis. The local immunity is deteriorated in cancer cases, if there is pneumonic infiltration in lung, excluding metastatic lesions and other infections; therefore, we must search tuberculosis too.

Key words: Coexistent, cancer metastases, contact screen, lung cancer, pulmoner tuberculosis.

Özet

Akciğer tüberkülozu ve akciğer kanseri klinik radyolojik özellikleri nedeniyle birbirlerini taklit ederler. Erken teşhis ve tedavi bu hastaların yaşam süresini uzamada önemlidir. Çalışmamızda, 59 yaşında akciğer kanseri metastazı düşünülen akciğer tüberkülozu tanısı alan hastayı sunduk. Olgumuzda sol akciğerde tüberküloz, sağ akciğerde akciğer kanseri (büyük hücreli nöroendokrin karsinom) aynı anda görüldü. Balgam yayma negatif akciğer tüberkülozlu olgumuz tedavisini tamamladıktan sonra öksürük ve balgam çıkarma şikâyetleri olan kızının balgam yaymasında asit alkole rezistans basil (ARB) tespit edildi. Yayma negatif tüberküloz olguların temaslı taraması önemlidir. Kanserli olgularda yerel immünite bozulduğundan akciğerde pnömonik infiltrasyon varlığında metastaz ve diğer enfeksiyon hastalıkları dışında tüberkülozda araştırılmalıdır.

Anahtar Sözcükler: Birlikte görülme, Kanser metastazı, Temaslı taraması, Akciğer kanseri, Akciğer tüberkülozu.

Tuberculosis (TB) and lung cancer (LC) is an important public health problem One-third of the world's population is infected with TB bacilli. TB bacilli may live at a dormant status in granulomas and induce TB sensitivity. A large Chinese study of over 700,000 people found that those who had TB were 11 times more likely to develop lung cancer than those without TB. The risk may increase further with co-existing COPD or other smoking-related cancers (1). Chronic infections such as PTB may lead to carcinogenesis of the lung tissue (2). Lung cancer is estimated to account for 1.4 million

incident cancer cases and cancer mortality accounts for 1.2 million cancer deaths per year in the world (3). Large-cell NE carcinoma (LCNEC) is rare cancers of lung, arising from the Kulchitzky cells which can be classified clinically, radiologically, and pathologically into four subtypes: typical carcinoid, atypical carcinoid, LCNEC, and small cell carcinoma. In addition, LCNEC comprises approximately 20 to 25% of all invasive lung malignancies. In surgical series, LCNEC carcinomas represent 3% of LC (4). Herein, we present a case who diagnosed with PTB and lung cancer simultaneously.

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CASE

A 59-year-old male patient was admitted to our clinic with complaints of cough and sputum for more than two months. Chest X-ray revealed a right hilar mass and left hand shadow of 2 to 2.5 cm mass; extending the hilar region from hilar to periphery (Figure 1). The case had a history of smoking one package/day for 40 year. Laboratory findings were normal. His tuberculin skin test (TST) was 9 mm, and Bacillus Calmette Guerin (BCG) vaccine scar one. Sputum smears Acid Fast Bacilli (AFB) and TB cultures were negative. Thoracic computed tomography (CT) showed a right hilar mass of 3x4 cm, extending to the mediastinal pleura including centroasiner nodules with 'tree in bud' appearance in the left lung. On bronchoscopy, right superior lobe carina was seen to be wider than normal. All lobes and segments and sub-segments were open. Bronchoalveolar lavage was taken from the anterior and posterior segments of the right superior lobe. Bronchoalveolar lavage result was Class II. Mini left thoracotomy and wedge resection were performed considering the lesion in the right lung was a primary lesion and the lesions of the upper and hilar regions of the left lung were metastatic lesions or infection diseases. The pathology of frozen-section was tuberculosis infection (granulomatous inflammation similar to tuberculosis infection). However, the diagnosis could be only confirmed histologically. There was no tissue culture. Sputum smears AFB and TB cultures were negative. First, the case was started on standard anti-TB-therapy to prevent spreading bacilli to lung and other organs. Chest X-ray showed improved clinical course with treatment response. One month later, a right thoracotomy was performed for the primary lesion. The pathology of biopsy was LCNEC. Distal part of left humerus, surrenal, and brain (cystic lesions) metastases developed (Figure 2). First, radiotherapy in the distal part of left humerus and brain, then, six cures chemotherapy were applied. He completed tuberculosis therapy (two months of isoniazid, rifampicin, ethambutol and pyrazinamide plus seven months of isoniazid, rifampicin). Unfortunately, he died within two year after diagnosis. After he completed tuberculosis therapy, his daughter (24 years old) who had symptoms of cough, sputum, and weight loss applied to our dispensary. Her sputum was smear-AFB positive. Her TST was 20 mm, and BCG vaccine scar one. Chest X-ray showed pneumonic infiltration in the right middle zone. Sputum resistant test were sensitive to major drugs. She started standard anti-TB-therapy and completed therapy (Figure 3).

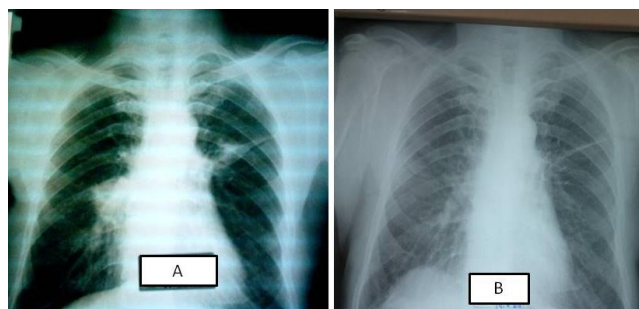


Figure 1A and B: Chest X-ray showing a right lung hilar mass and 2 to 2.5 cm wide shadow like band extending the peripheral region from hilar to the left lung (A). During diagnosis of lung tuberculosis and lung cancer and following treatment for lung TB disease (B)



Figure 2: X-ray showing metastases in the distal part of left humerus and brain

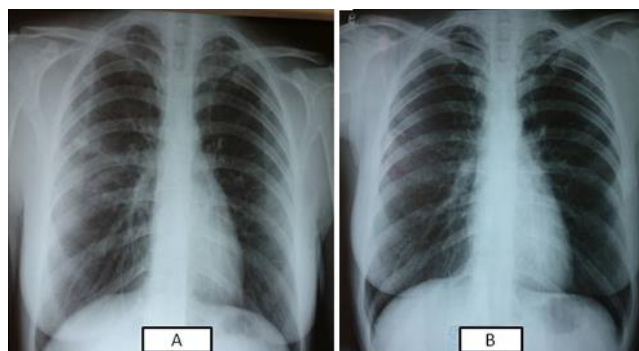


Figure 3A and B: Daughter of patient's chest X-ray showing pneumonic infiltration in the right middle zone during diagnosis of lung tuberculosis (TB) (A) and (B) following treatment for lung TB disease

DISCUSSION

The relationship between PTB and lung cancer has been known for many years. TB, with reactivation of a latent TB or primary mycobacterial infection may occur, if the local immunity is deteriorated. New exogenous infection may also cause TB infection. Immune suppressive therapies (i.e., tumor necrosis factor (TNF) α inhibitors or corticosteroids), antineoplastic chemotherapy, immune dysfunction (i.e., in lymphomas), radiotherapy, and severe malnutrition may lead to immunosuppression, particularly depression of the T-cell defense mechanism (5,6). An occult cancer can reduce immunity and lead to reactivation of latent tuberculosis. Therefore, tuberculosis may present clinically, before lung cancer. Inflammation and

pulmonary fibrosis caused by tuberculosis can induce genetic damage, which can increase LC risk (3,6). Of note, smoking is an important risk factor for lung cancer. Furthermore, LCNEC is rare cancer of the lungs. There is often a very heavy smoking history. These patients are rarer in women. Paraneoplastic syndromes are also rare. Symptoms of LCNEC include chest pain, cough, fever, hemoptysis, dyspnea, and weight loss. Tumors usually involve periphery and the upper lobes of the lung, while 25 % of patients are asymptomatic. Metastases usually occur in liver, bone, adrenal glands, and brain (7). Our case had no previous history of lung disease or pulmonary TB. There was no risk factor except smoking. However, he developed distal left humerus, surrenal and brain metastases.

In addition, PTB and LC are able to mimic clinical and radiological expressions. Diagnosis may be delayed and the survival may be shorter. These two entities may involve the same lung, different lungs, and extra-pulmoner region. In our case, PTB in the left lung and LC in the right lung were found simultaneously.

After our case completed tuberculosis therapy, his daughter was diagnosed smear positive pulmonary tuberculosis. There was no TB neighbors and household out of her father in contact screen. We thought that her father was index TB case. Liu et al. (8) evaluated 12 contact reviews and found that for smear-positive index and smear-negative index were 1 and 0.2%, respectively in household and 0.5% for pulmonary case index in congregate settings. Becerra MC et al. (9) reported the TB prevalence through combined active and passive case finding among 1,094 household contacts was 0.91%, among 2,258 neighbors, the combined strategy detected a TB prevalence of 0.22%.

In conclusion, the local immunity is deteriorated in cancer cases, if there is pneumonic infiltration in lung, excluding metastatic lesions and other infections; therefore, we must search tuberculosis too. We should not make delay in the diagnosis of active PTB in LC. Early TB diagnosis may be extending median survival. Smear negative pulmonary tuberculosis cases' contacts TB screen is important for early TB diagnosis.

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - B.Ç.; Planning and Design - B.Ç.; Supervision - B.Ç.; Funding - ; Materials - B.Ç.; Data Collection and/or Processing - B.Ç.; Analysis and/or Interpretation - B.Ç.; Literature Review - B.Ç.; Writing - B.Ç.; Critical Review -

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