中文題目：抗藥性肺結核和隱球菌合併感染的病例報告

英文題目：Drug resistant tuberculosis and cryptococcosis co-infection: case report

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Introduction:

The impaired cellular immunity in immunocompromised patient who infect tuberculosis or cryptococcosis is increased, such as acquired immunodeficiency syndrome (AIDS) and diabetes mellitus or receiving corticosteroids or immunosuppressive agents. But there is less reported about tuberculosis and cryptococcosis co-infection even in immunocompromised patients [2]. According to Taiwan centers of disease control, there were 8732 new diagnosed tuberculosis cases in Taiwan in 2019(the prevalence rate was 37.0 cases per 100,000 people); besides, cryptococcosis was about 600-800 per year in Taiwan during 2002 to 2011. There were 23 cryptococcosis /tuberculosis co-infection cases in Taiwan during 1993-2006 [1]. Besides, the prevalence is increased over the last two decades [7].

We present a case of tuberculosis and cryptococcosis co-infection in elderly patients with type II diabetes mellitus, chronic kidney disease, chronic obstructive pulmonary disease, gout, old cerebrovascular accident, parkinsonism, dementia. He presented with chest tightness, fever, weakness, and poor appetite. Cryptococcosis was confirmed by blood cryptococcus antigen revealed positive; besides, tuberculosis was confirmed by the culture in bronchoalveolar lavage.

Case presentation:

This 69-year-old male with type II diabetes mellitus, chronic kidney disease, chronic obstructive pulmonary disease, gout, parkinsonism, dementia present intermittent fever, general weakness and poor appetite for one week.

The chest X-ray showed interstitial lesion, small nodular shadows and alveolar pattern especially of the left upper lung(Fig.1). Laboratory examination showed WBC: 15600/ul, CRP: 8.94 mg/dl, chest CT revealed fibronodular lesions and cavitary masses are noted in both lungs (Fig.2-5). Besides, the later blood cryptococcus antigen revealed positive(1:160) and we prescribe fluconazole for cryptococcus pneumonia. However, the patient lose weight gradually and persistent weakness. During outpatient department follow-up, the sputum culture found tuberculosis, so we prescribed Akurit-4 later. After one month treatment, his clinical symptoms did not improve. Finally, the sensitivity test found it was multidrug-resistant tuberculosis (MDR-TB) resistant to rifampin, so he received isoniazid, Ethambutol, and levofloxacin for further treatment.

Discussion:

Here we report a case of immunocompromised with tuberculosis and cryptococcosis co-infection and even MDR-TB. It was a rare case in the past report.

Fang W et al. [1] report that the prevalence of co-infection among the TB population was 0.6% (23 co-infection cases/4053 total cases), and the prevalence of co-infection among cryptococcosis was 5.4% (n=23/425) between 1993 and 2006 in Taiwan. Three studies revealed that the rates of TB/ cryptococcosis co-infection in TB/fungal co-infection ranged from 2.7% to 3.8% (n=1/31, 2009–2010, Shandong; n=2/74, 2002–2004, Guangdong; and n = 1/26, 2010–2011, Henan).

Imaging of tuberculosis include cavitation, consolidation, centrilobular and tree-in-bud nodules, miliary

nodules, lymphadenopathy, or pleural effusion [4]. Fox DL et al. [3] report that pulmonary cryptococcosis is more measuring 5-52 mm in diameter. The feature of pulmonary cryptococcosis is peripheral distribution upto 80%, and cavitation of nodules or consolidation is seen in approximately 40% of the cases. Tuberculosis is described as the great imitator as it can imitate various other disease processes [5]. Therefore, it is difficult to distinguish tuberculosis and cryptococcosis by the images. The image of our case showing reticular opacities and cavitary masses of left upper lobe; besides, there were also spiculated nodules, and smoothly marginated nodules in the periphery (Fig.2-5).

In the current treatment of pulmonary cryptococcosis, fluconazole 400 mg/day for 6-12 months is recommended; besides, voriconazole (200 mg twice/day), itraconazole (200 mg/day), and posaconazole (400 mg twice/day) are acceptable alternatives if fluconazole is unavailable or contraindicated [6]. According to Taiwan CDC, the regimen for tuberculosis remains a regimen consisting of an intensive phase of 2 months, isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB), and followed by a continuation phase of 4 months of INH, RIF and EMB. However, in the MDR-TB, WHO suggest five effective anti-tuberculosis drugs, including PZA, in intensive phase and prolong the treatment course.

Sawai T et al and Kuroda A et al reported 11 and 15 cases of treatment of co-infection, in conclusion that most patients were recovery [2,8]. Besides, fluconazole combined with anti-tuberculosis is safe, but voriconazole combined with anti-tuberculosis, especially rifampin, is contraindication to liver function.

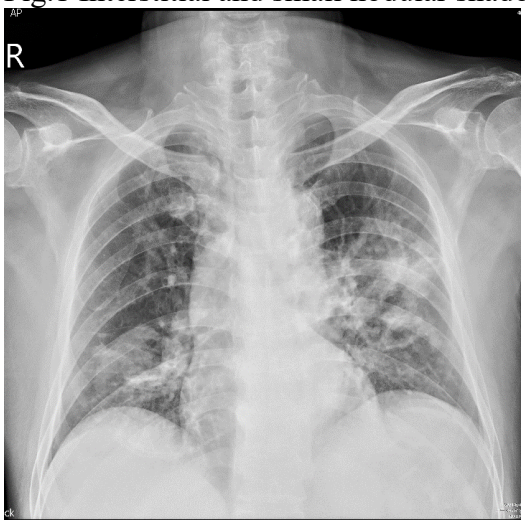
Conclusion:

In summary, both tuberculosis and cryptococcosis have a wide range of clinical presentations; besides, they also can be associated with similar imaging findings, pulmonary cryptococcosis should also be considered in patients who have potentially been exposed to tuberculosis. Bronchoscopy and serum cryptococcal antigen testing should be performed to distinguish between pulmonary cryptococcosis and pulmonary tuberculosis. Especially, in immunocompromised patients, we have to mention opportunistic co-infection.

This case corroborates with the previous studies that the immunocompromised patient, type II diabetes mellitus, diagnosed with cryptococcosis and tuberculosis co-infection is difficult, because of the similarly clinical symptoms, images and high risk of opportunistic infection. Moreover, the clinical symptoms was not improvement because of MDR-TB, which is less mention in the previous study. Besides, we need mention the drug used to avoid unnecessary damage.

Figures:

Fig.1 Interstitial and small nodular shadows over bilateral lungs



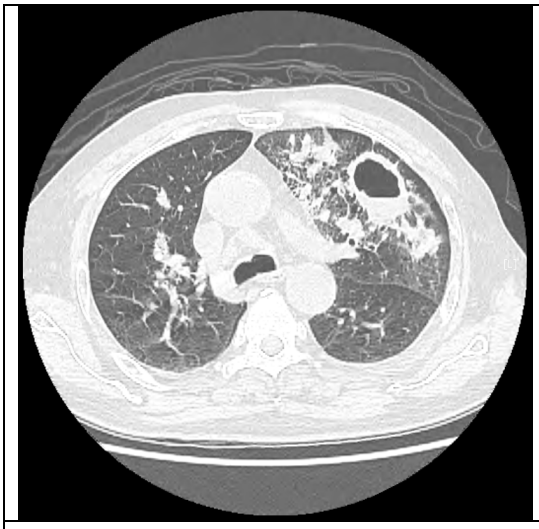


Fig2. Fibronodular lesions and cavitary masses

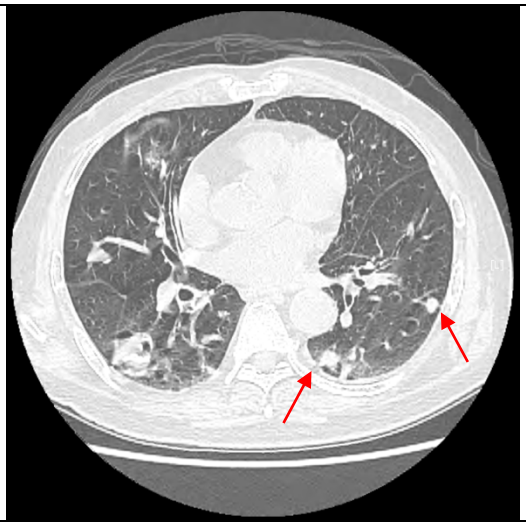


Fig3. spiculated nodule

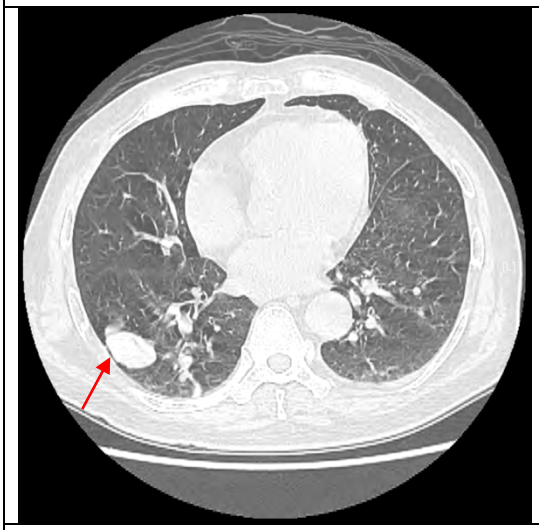


Fig4. smoothly marginated nodules

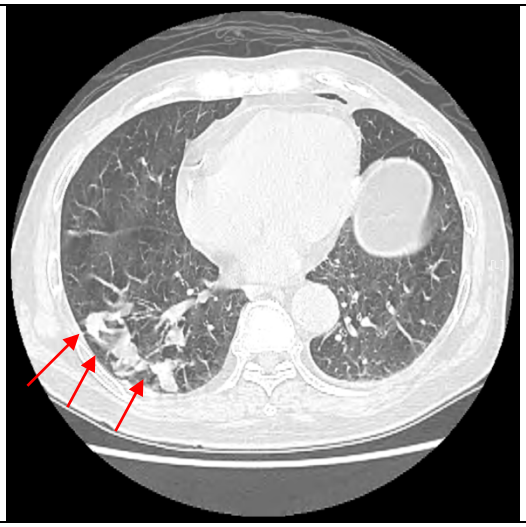


Fig5. multiple predominantly ill-defined nodules in periphery

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