

Imaging diagnosis

Case 438

1. A,B

【Progress】

She was scheduled to restart medicines.

【Discussion】

Non-tuberculous mycobacterium (NTM) is one of the floras living in soils, water tubes and faucet. That is not pathogenic for healthy persons but for immune-compromised ones including high-age women after menopause. The imaging of NTM is categorized into fibronodular type, bronchiectasis type, and cavity type. It is known that NTM has around 200 species and mycobacterium avium (MAC) is the most and sometimes hard to overcome (1-7).

When MAC is taken in respiratory tracts, it is excreted by macrophages in healthy persons but in some cases, it survives and proliferates. The MAC nodules are composed of caseous necrosis in the center and macrophages and lymphocytes in the surroundings and further proliferation of fibrocytes and fibrosis in most outside surroundings to confine MAC. When MAC adheres in the bronchus, MAC survives in bronchus, proliferates and finally forms nodule, inducing occlusion of bronchial lumen and dilatation of peripheral bronchus. When caseous necrosis is excreted, it leads to form cavities where viable MAC are living at the cavity mural. It can be the origin of MAC that move to the other area of the lung via bronchus pathway.

Pulmonary tuberculosis belongs (Tbc) to the same mycobacterium species as NTM including MAC. There are several differences between Tbc versus MAC; human to human infection in Tbc vs not in NTM; respiratory symptoms, strong in Tbc vs weak in NTM; prognosis, high mortality vs relatively poor; therapeutic effect, good, chance to overcome vs no good, resistant to medicines; drug sensitivity, established vs unreliable except clarithromycin; therapeutic terms, 6-9 months vs long terms: recurrence, rare vs quite often. The goal of treatment for NTM is to improve symptoms of hemoptysis and/or cough and to get the improvement of prognosis by preventing the progression of symptoms.

The treatment should be initiated instantly for cases with NTM associated with cavity formation and/or with hemoptysis in fibrous nodular type. The medicines for NTM are basically three: clarithromycin or azithromycin, rifampicin, ethambutol. In case of these medicines being not effective, erythromycin is used for single medicine. In case of these medicines being not available, amikacin with intravenous administration or inhalation is used (1-7). The action mechanism of amikacin is to block the process of bacteria proliferation by inhibiting protein synthesis in bacteria.

【Summary】

We presented a sixty-three-year-old female with hemoptysis and persistent cough. Cavity and a medium-size nodules in right lobe associated with collapse of middle lobe are depicted on chest CT, compatible with non-tuberculous mycobacterium (NTM). It is borne in mind that the treatment for NTM should be instantly initiated in cases with hemoptysis if fibrous nodule type and/or cavity type. Three medicines of clarithromycin or azithromycin, rifampicin, ethambutol are basic and in emergency, amikacin should be administered via intravenous or inhalation. When these medicines are not available, erythromycin is used as single preserving medicine.

【References】

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[back](#)

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