

Pulmonary actinomycosis – the great imitator

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Grzywa-Celińska A, Emeryk-Maksymiuk J, Szmygin-Milanowska K, Czekańska-Chehab E, Milanowski J. Pulmonary actinomycosis – the great imitator. *Ann Agric Environ Med.* 2018; 25(2): 211–212. doi: 10.26444/aaem/75652

Abstract

Pulmonary localisation represents only 15% of all cases of actinomycosis. The clinical symptoms and radiological changes of this disease are non-specific and sometimes it can be misdiagnosed, usually as tuberculosis, lung cancer or lung abscess. In the reported case, what might look like the lung cancer, finally turned out to be actinomycosis. The interesting case is presented of lung actinomycosis in a 77-year-old farmer, admitted to the Department of Pneumology, Oncology and Allergology in Lublin due to a massive haemoptysis. CT scan of the chest showed, apart from other changes, the spicular consolidation in the right lung which aroused oncology vigilance. The diagnostic path, which was a real medical challenge, led to the diagnosis of actinomycosis. The process of diagnosis and consequent treatment, which led to the complete regression of clinical and radiological changes, is presented.

Key words

actinomycosis, imitator, lung cancer

INTRODUCTION

A 77-year-old farmer, a current smoker, treated for chronic obstructive pulmonary disease, was admitted to the Department of Pneumology, Oncology and Allergology in Lublin, due to massive haemoptysis of several days' duration. A chest X-ray showed an area of lung consolidation about 21 mm in size in the lower part of the right hilus. Computed tomography (CT) of the chest was carried out, which, apart from emphysema and fibrosis, revealed *spicular* consolidation at the base of segment 2 of the right lung (29 mm in diameter), and an area of parenchymal consolidation in segment 8 of the right lung (size 28 × 51mm), which was not present in a previous CT performed six months earlier. Additionally, the parenchymal area (41 × 40 mm in diameter) was described in

the left lower lobe with a centrally located cavity. There were a few enlarged lymph nodes in the mediastinum. Because of the clinical and radiological picture which aroused oncology vigilance, bronchoscopy was performed. The bronchoaspirate was taken for microbiological examination. A peribronchial lung biopsy was performed in segment 2 of the right lung. A pathology test showed no neoplastic tissue, but colonies of microorganisms morphologically corresponding to *Actinomyces* were found within the purulent masses. A culture on Schaedler agar was negative. Treatment with penicillin G was started with a dose of 18 million units/day for 3 weeks; next, it was continued with amoxicillin on an outpatient basis. During the initial intravenous antibiotic treatment the haemoptysis subsided and the well-being of the patient significantly improved.

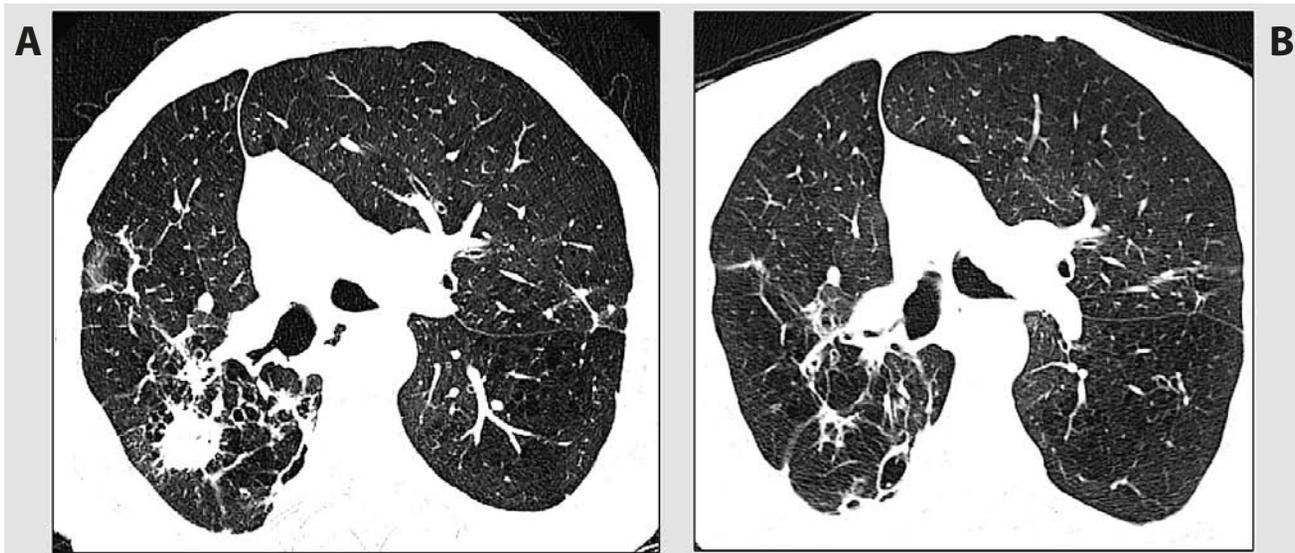


Figure 1.A. Chest CT imaging of lung actinomycosis before treatment

Figure 1.B. Chest CT imaging of lung actinomycosis during treatment: significant regression of radiological changes

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Received: 24 February 2017; accepted: 8 May 2017; first published on June 2017

After about 6 months of treatment, a CT showed a significant reduction in the *spicular* consolidation of segment 2 of the right lung (from 29 mm to 14 mm), almost complete regression of the parenchymal densities in the left lower lobe (41 × 40 mm to 20 × 14 mm), and total regression of the changes in segment 8 of the right lung (Fig 1 A, B).

DISCUSSION

Actinomycosis of the lungs is a rare disease. After facial-neck and ventro-pelvic variants, the pulmonary location is the third most frequent location of the infection with *Actinomyces* spp. [1] and represents approximately 15% of all cases of actinomycosis [2, 3, 4]. Among others, the most common pathogen for humans is *Actinomyces israelii* [2]. Because these bacteria are saprophytes of the oral cavity, negligent hygiene may be the cause of the infection. Risk factors also include emphysema, chronic bronchitis, bronchiectasis, cigarette smoking, alcoholism, and disorders of carbohydrate metabolism [1, 3, 5]. The study patient had a poor oral hygiene as he was a smoker and did not avoid drinking alcohol.

The clinical symptoms and radiological changes of this disease are so non-specific that in some cases it can be a diagnostic riddle. The most common clinical manifestations, also observed in the presented patient, include: cough, coughing up phlegm, haemoptysis, chest pain, fever and weight loss [4]. In the presence of the above symptoms, differential diagnosis usually takes into account more prevalent diseases, such as lung cancer, TBC or pneumonia.

A tumour with or without cavities, which may 'mimic' cancer, is a pathology frequently encountered in the radiographic lung picture in the early stages of the disease [1, 4, 5].

It is worth noting that Gram staining and histo-pathological examination of specimens from the affected organs are more sensitive than culture, which in over 50% of cases do not give a reliable answer due to previous antibiotic therapy, which inhibits the growth of Actinomycetes by coexisting bacteria, or the fact that incubation time is too short. It should be borne in mind that Actinomycetes have slow growth, and just 10-day culture allows for the exclusion of the infection with this microorganism [1].

Once the disease is confirmed, beta-lactam antibiotic given for 6–12 months is the therapy of choice.

It is very plausible that there are patients who are repeatedly hospitalized with typical, though non-specific symptoms of actinomycosis. In such cases, an extension of incubation time on microbiological surfaces, or pathology tests of the collected material, would give a chance for faster diagnosis and effective treatment of this disease.

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