Subclinical community-acquired *Acinetobacter* pneumonia associated with mature cystic teratoma masquerading as lung abscess

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**Keywords**

*Acinetobacter*, community-acquired pneumonia, lung abscess, mature cystic teratoma, subclinical.

**Abstract**

A 22-year-old lady presented with fever and right pleuritic chest pain with chest X-ray showing a right suprahilar shadow. Her symptoms largely subsided with antibiotic therapy but the shadow remained unresolved. Computerized tomography (CT) scan of thorax showed consolidation over the anterior segment of the right upper lobe with a hypodense area suspicious of a lung abscess. Fine needle aspirates of the lesion grew *Acinetobacter baumannii* twice but the shadow persisted despite multiple courses of antibiotics targeted at the organism. Right video-assisted thoracoscopic surgery was done and the pathological diagnosis was a mature cystic teratoma with adjacent lung consolidation. Culture of the lung specimen also grew *Acinetobacter baumannii*. This was the first reported case of subclinical community-acquired *Acinetobacter* pneumonia in association with a mature cystic teratoma, which masquerades as a lung abscess.

**Introduction**

A mature cystic teratoma may rupture into the adjacent lung causing pneumonitis. Community-acquired *Acinetobacter* pneumonia is a clinically unique entity characterized by a fulminant course, high complication and mortality rates. We hereby report a case of subclinical community-acquired *Acinetobacter* pneumonia in association with a mature cystic teratoma masquerading as a lung abscess.

**Case Report**

A 22-year-old lady, a non-smoker and non-drinker, was well all along. She had a history of travelling to Korea, Bali, and Taiwan. She complained of right pleuritic chest pain and fever in June 2017. Her symptoms improved with a course of oral antibiotic. Her chest X-ray showed an unresolved right perihilar opacity (Fig. 1).

Computerized axial tomography (CAT) scan of thorax in September 2017 showed segmental consolidative change at the anterior segment of the right upper lobe with a well-defined hypodense lesion of cystic density within the consolidation, worrisome of lung abscess.

Another CAT scan of thorax 6 weeks later in November 2017 showed that the consolidation appeared larger but the loculated collection appeared similar in size (Fig. 2).

Investigations including blood and sputum tests, spirometry, and bronchoscopy, were all normal. In particular, HIV antibody was negative and immunoglobulin pattern was normal. Serial C-reactive protein (CRP) and serum procalcitonin were also normal. She was given antibiotics including amoxicillin/clavulanate and azithromycin but the lung opacity waxed and waned.

Fine needle aspiration under fluoroscopy was performed in December 2017. The aspirate grew *Acinetobacter baumannii* (AB), so the patient was given a course of intravenous piperacillin-tazobactam followed by oral ampicillin-sulbactam. Again, the opacity waxed and waned.

Fine needle aspiration was repeated in February 2018 because the opacity had increased in size. Again, AB was grown. The organism had become intermediate sensitive to piperacillin-tazobactam. She was thus put on intravenous cefepime and amikacin but the antibiotics were stopped after two weeks because of drug rash. The opacity remained unresolved.
A CT scan of thorax in April 2018 showed mild interval enlargement of the consolidation. The hypodense area at its anteromedial part appeared similar.

She was referred to the cardiothoracic surgeons because of failed medical treatment of a suspected chronic lung abscess. Right video-assisted thoracoscopic surgery was performed in June 2018. An anterior mediastinal mass was found arising from the right inferior thymus about 7×3 cm in size strongly adhered to the right upper lobe anterior segment with adjacent consolidation of the right upper lobe. Partial thymectomy and wedge resection of right upper lobe was performed. Pathology of the mediastinal mass showed mature cystic teratoma, while pathology of the lung showed acute on chronic inflammation. The specimen also grew AB on culture.

The patient was last seen by the cardiothoracic surgeon in January 2019. She was well and her chest X-ray was clear.

**Discussion**

To the best of authors’ knowledge, this is the first reported case of subclinical community-acquired *Acinetobacter* pneumonia in association with a mature cystic teratoma, which masquerades as a lung abscess.

There are three remarkable points in this case. The first point was the simulation of the mature cystic teratoma to a chronic lung abscess such that it was misdiagnosed as the latter initially. The macroscopic appearance of the specimen contained light tan friable cheese-like material, which might represent the cystic area. The lack of symptoms and signs of infection and the poor response to antibiotic therapy should have led us to suspect an alternative diagnosis. This has not been reported in the literature.

The second point was the association between mature cystic teratoma and adjacent lung consolidation. Mediastinal teratomas usually occur in young patients with a slight female preponderance. Most of them are mature and benign. Symptoms may occur if there is adjacent organ compression, tumour rupture, or superimposed infection. Spontaneous rupture has been reported to occur in 36–41% of the cases. Depending on the site of rupture, the patient may develop chest pain (due to chemical pneumonitis, pleuritis, or mediastinitis), dyspnea, hemoptysis, hemothorax, trichoptysis (coughing out of sebaceous materials and hair), pneumothorax, constitutional symptoms, cardiac tamponade, and perforation of great vessels.
Surgical resection is the treatment of choice because of the risks of rupture with serious and life-threatening complications and malignant transformation [1].

The adjacent pneumonitis in our case was suggestive of tumour rupture [2].

The third point is community-acquired *Acinetobacter* pneumonia.

*AB* is an important cause of hospital-acquired pneumonia (HAP) with a tendency to develop multiple drug resistance. It is also an uncommon cause of community-acquired pneumonia (CAP). Community-acquired *Acinetobacter* pneumonia is a clinically unique entity, which is characterized by a fulminant course with a high incidence of bacteremia, ARDS, septic shock, DIC, and early death. The mortality rate is higher than the overall mortality rate (40–64% versus 24%) of severe CAP [3]. The usual empirical antimicrobial regimens for CAP do not cover this organism. Risk factors include hazardous alcohol use, smoking, chronic lung disease, and chronic renal disease. The disease occurs predominantly in tropical areas during the wet season. Early appropriate antibiotic therapy is associated with a dramatic reduction in mortality rate [4].

We thought that *Acinetobacter* pneumonia did occur in our patient. The organism was isolated from the culture three times (two lung aspirate and one surgical specimen) and pathology of lung showed acute chronic inflammation. Our case was unique in that the disease was subclinical. The patient was largely asymptomatic with normal CRP and procalcitonin all along. In addition, the patient had no risk factor for this disease.

**Disclosure Statement**

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

**References**

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