

中文題目：複雜性肋膜積水麴菌屬抗原偽陽性反應成因案例探索

英文題目：False positive reaction of *Aspergillus* antigen detected in complicated parapneumonic effusion: case analysis and lesson to learn

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**Background:** Parapneumonic effusion is the most common cause of an exudative pleural effusion, clinical classification as uncomplicated parapneumonic effusion resolves with antibiotic therapy without pleural sequelae; complicated parapneumonic effusion requires pleural space drainage to prevent progression to an empyema. Thus pleural fluid analysis allows the clinician to guide initial management.

**Material and Methods:** This is a 29-year-old man denied any underlying disease and well before. This time, patient suffered from fever up to 39°C with chilliness for 3 days. Associated symptom: cough with whitish sputum. He went to nearby local hospital for help and pneumonia was considered about. Antibiotics of Unasyn was used. However, the symptom didn't improved. And follow-up CXR reveal L't pleural effusion increase. Due to above reason, he was transferred to our hospital for help. PE reveal no lymphadenopathy. Bilateral clear breathing sound. Abdomen soft and flat, no tenderness. Lab data reveal WBC: 9600, Hb: 14 PLT:292000, CRP:26.3 Na/K:135/4.1 BUN/Cr:6/1.01 GOT/GPT:33/46. Abdominal echo reveal no ascites or hydronephrosis, Chest echo reveal L't focal pleural effusion. Thoracentesis was done at our ward and pleural fluid analyzed. Under the impression of Pneumonia with pleural effusion, he was admitted to receive further treatment. After admission, we arranged antibiotics with 2rd cephalosporin, symptom treatment with O<sub>2</sub> supplement. After process treatment we gave re follow up CXR revealed pneumonia patch was improved. Chest echo showed loculated effusion. Pleural effusion, cytology - Negative for malignant cell. The clinical sign was controlled and stable condition.

**Result:** Ultrasound-guided thoracentesis should be performed. Ultrasonography can detect stranding or septation in the fluid suggestive of complicated parapneumonic effusion and can facilitate its drainage. Treatment of complicated parapneumonic effusion on the basis of pleural fluid analysis. specimen have a turbid appearance, with a pH 7.40, a glucose level 74 mg/dl, an LDH level 784 IU/L, and negative Gram stain and bacterial culture results were negative. ADA was 88U/L. aspergillus antigen was positive. Culture of those specimen initially may yield negative results. All abnormalities that related the etiology of the pleural infection. Finally pleural effusion was negative for fungus but positive for *M. tuberculosis*.

**Discussion:** The main diagnostic method for pleural aspergillosis is demonstration of *Aspergillus* within the pleural space. This can be achieved either by visualizing characteristic hyphae and/or direct culture of the fungus from pleural fluid Galactomannan be detectable in pleural fluid. The latex agglutination test is available and has a higher detection limit. Because galactomannan is a water-soluble carbohydrate, it can be detected in samples of other fluids obtained from patients

with invasive aspergillosis, including urine, CSF, pleural effusion, and BAL fluid. Though the ELISA is not validated for detection of galactomannan in these fluids, there is an increased tendency to use samples of these fluids, in addition to serum, for diagnosis of invasive aspergillosis. In addition, galactomannan can be detected in tissue specimens. The detection of galactomannan in specimens other than serum specimens may provide additional evidence for invasive aspergillosis via a noninvasive method .Overall specificity of Aspergillus antigen detection using the galactomannan EIA is approximately 80%. In addition to a lack of specificity with respect to some rarer fungi (in which case probably the patient will receive antifungal therapy), several antibiotics and other patient factors may yield false positives. Several beta-lactam antibiotics are manufactured using fungal fermentation as first step. This often resulted in carryover of galactomannan into the antibiotic preparation and ‘false positive’ results that can persist for some days. The most common antibiotics to be implicated are piperacillin/tazobactam and amoxicillin/sulbactam, but some cephalosporin and meropenem have also been implicated. False positive results have not been observed with glycopeptides, quinolones or aminoglycosides. If the patient has been treated with antibiotics or cultures were processed optimally. The bacteriologic yield of fluid inoculation into the culture medium .In patients with complicated effusion .The management of should proceed with a sense of urgency. It is important for the clinician to have a management plan that limits any delay in invasive treatment. In general, early and appropriate antibiotic treatment will prevent the progression. Therefore, antibiotic selection is based on clinical features and guide for treatment of pneumonia. Clinical suspicion and early detection of fungal cause of a non-responsive complicated parapneumonic effusion may improve the clinical outcome of such patient. False positive and negative reaction of aspergillus antigen will mislead treatment direction.