

# LUNG ABSCESS CAUSED *Streptococcus intermedius*: A FIRST CASE REPORT IN VIETNAM

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## Summary

Lung abscess is an infectious disease that can cause various dangerous complications, in which bacterial pathogens play an important role. In this case study, the first case of lung abscess caused by *S. intermedius* in Vietnam is reported. A 66 - year - old female patient with a history of type 2 diabetes for over 10 years was hospitalized with the symptoms of right chest pain, cough with sputum and frequent breathing difficulties; but no evident signs of infection (no fever, slightly elevated white blood cell count). The aspirated pleural fluid had matcha green color, bacterial culture and identification shown that *S. intermedius* was susceptible to Penicillin and Ampicillin antibiotics. The patient was treated according to the results of antibiogram combined with pleural drainage and lavage, the patient had a good response and was discharged after 33 days of treatment.

**Key word:** Lung abscess, *Streptococcus intermedius*, Vietnam.

## INTRODUCTION

Lung abscess is an infectious disease that can cause various dangerous complications, in which bacterial pathogens play an important role. Some common types of bacteria are staphylococcus, pneumococcus, streptococcus or anaerobic bacteria<sup>[1]</sup>. Among them, *Streptococcus intermedius* is a Gram-positive member of the *S. anginosus* group. This bacterium is a part of the microflora that normally reside in the oral cavity as well as the gastrointestinal tract<sup>[2]</sup>. Although few members of this *S. anginosus* group are considered the pathogenic cause of abscess and systematic infection, lung abscess caused by *S. intermedius* is quite rare and there are very few case reports of this disease in the world. In this case study, the first case of lung abscess caused by *S. intermedius* in Vietnam is reported.

## CASE REPORT

The 66 - year - old female patient with a history of type 2 diabetes was hospitalized with the symptoms of right chest pain, cough with sputum and frequent breathing difficulties. Examination upon admission indicated that the patient was conscious, had good interaction, normal thyroid gland, soft abdomen, no abnormal found in liver and spleen, stable heartbeat, and decreased right lung ventilation. Her vital signs were as follows: pulse 87 times/minute, body temperature 37 - degree Celsius, blood pressure 140/90mmHg, breathing rate 21 times/minute, body weight 65kg, height 160cm. Diagnosis upon hospitalization was respiratory failure due to pleural effusion suspected by tuberculosis. However, her test of AFB staining gave negative results. The capillary blood sugar test performed at 6 o'clock and 18 o'clock was 19 and 29mmol/l respectively. Except for slightly increased white blood cell count, other hematological and biochemical indices were reported within the normal range.

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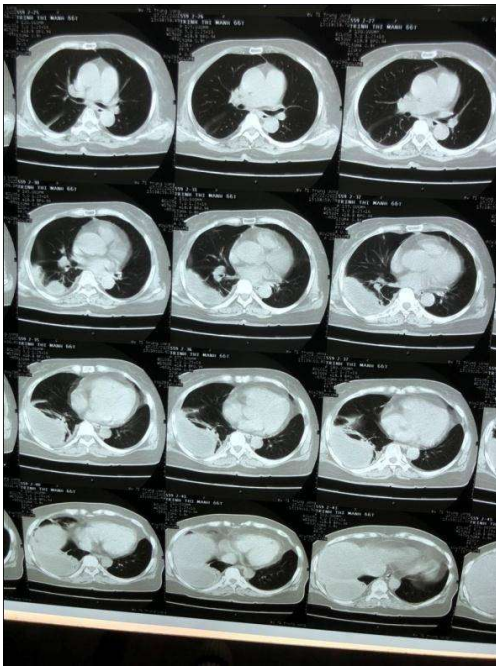
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**Figure 1.** CT scan result determining lung abscess



**Figure 2.** Radiograph showing the abscess lesion on the right lung lobe

Chest radiograph and CT showed that the inferior lobe of the right lung had a pleural loculated effusion with a size of 105x62 mm, along with an unevenly thick pleura (figures 1 and 2).

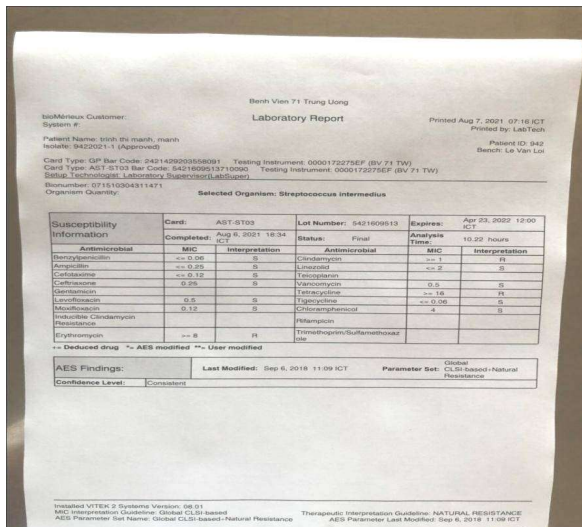


**Figure 3.** Color and nature of pleural fluid



**Figure 4.** Bacterial colonies of *S. intermedius* isolated on Chocolate agar

Right pleural aspiration released the fluid with match a green color and a volume of 250ml (figure 3). The bacterial culture result displayed pure Gram - positive cocci (figure 4).



**Figure 3.** *S. intermedius* antibiogram results

Identification showed the *S. intermedius* pathogen (figure 3). Staining and culture to detect tuberculosis in pleural fluid gave negative results. The patient was put under treatment of intravenous Cefazolin, Ofloxacin and Metronidazole within 10 days, combined with pleural drainage and lavage, which gave a good response. After receiving antibiogram results, her treatment changed from cefazolin to 4g/day of ampicillin - sulbactam, while maintaining Ofloxacin, Metronidazole along with diabetes and blood sugar control medicine. She was discharged after 33 days under a stable condition, with a prescription of amoxicillin - clavulanic and an appointment of re - examination after 15 days.

## DISCUSSION

This is the first clinical case report of *S. intermedius* causing lung abscess in Vietnam. There are only a few similar reports over the world, in which *S. intermedius* is detected in old - aged patients<sup>[3]</sup>. The highlight of this case is that the patient had no typical clinical signs of infection (no fever, slightly elevated white blood

cell count) but still had lesions as seen on chest radiograph as well as CT. At the same time, apart from underlying diabetes, no other risk factors were found.

The microbiological pathogen isolated here is *S. intermedius*, which is resistant to some antibiotics such as Erythromycin, Clindamycin or Tetracycline, but is still susceptible to Penicillin and Ampicillin and some other antibiotics, so the treatment was relatively received well - response.

The accurate diagnosis of the *S. intermedius* pathogen played an important role in the treatment outcome because this bacterium belongs to the *Streptococcus milleri* group and is difficult to distinguish from two other pathogens, *Streptococcus constellatus* and *Streptococcus anginosus*. Some common characteristics of patients with respiratory diseases caused by these pathogens are: usually male, old-aged, and having underlying medical conditions<sup>[4]</sup>. In addition, *S. gordonii* is also the cause of abscess, although it is rarely reported specifically<sup>[5]</sup>. In clinical practice, differential diagnosis with lung abscess caused by tuberculosis or fungi and parasites is also essential in order to accurately determine the cause of the disease in order to get appropriate treatment.

## CONCLUSIONS

In conclusion, despite being a member of the microflora and rarely causing diseases, lung abscess caused by *S. intermedius* has a severe prognosis and requires appropriate medical intervention and treatment. Accordingly antibiogram plays an important role in treatment orientation because at present *S. intermedius* is still sensitive to most antibiotics such as Penicillin, Ampicillin or broad - spectrum Betalactam.



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