

## Case 1

A 32 year old woman presented with a cough for several weeks and a 10 kg weight loss. She also had night sweats and subjective fevers and felt fatigued. Despite erythromycin treatment for suspected pneumonia given by her physician, her fever and cough progressively got worse. She complained about coughing blood-tinged sputum.

She had emigrated from Chaing-Mai to the Bangkok three years before illness, but she frequently returned to Chaing-Mai to visit relative.

### Physical examination

VS: T 38.6°C, PR 96/min,  
RR 18/min, BP 112/60 mmHg

PE: Examination was remarkable for  
bilateral rales and lymphadenopathy

Chest x-ray revealed right upper lobe infiltrates



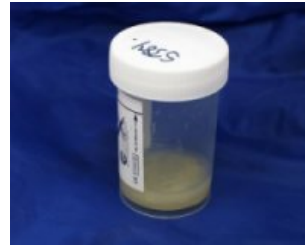
### Laboratory studies

CBC Hct 32%, WBC 8500/ $\mu$ l, Differential normal

Blood gas pO<sub>2</sub> 78 mmHg

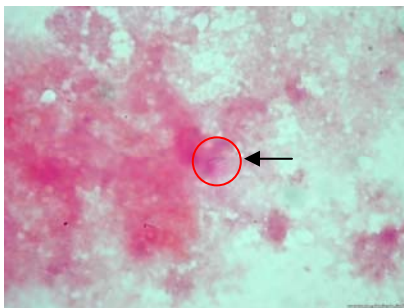
Serum chem.. Normal

Culture specimen : sputum

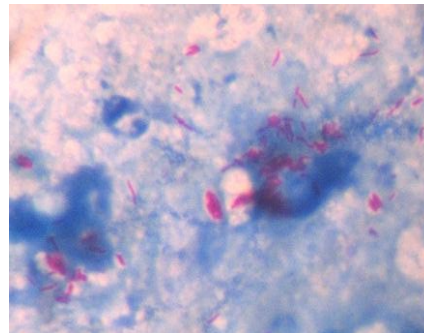


### Direct examination

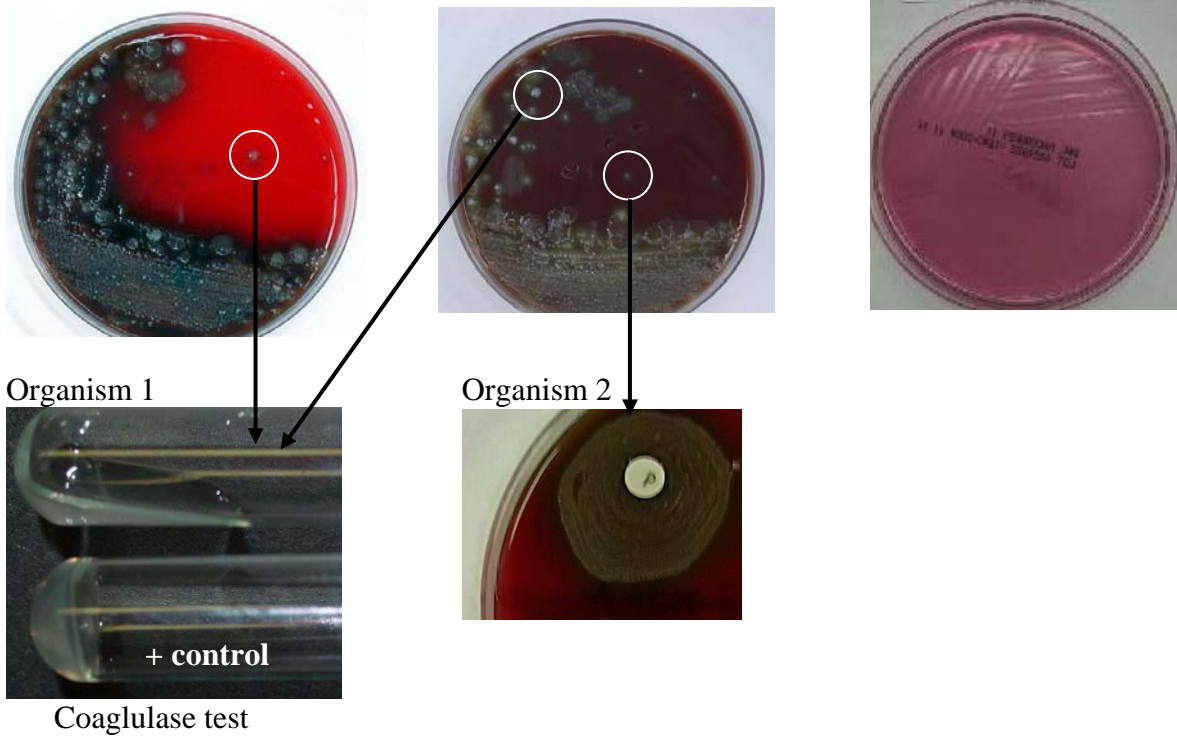
#### Gram stain



#### AFB stain



## Culture



1. With sign and symptoms, can you differential diagnosis for the suspected pathogens in this case?
2. Report cell morphology from gram stain and AFB stain.
3. From the culture results, organism 1 and 2 are? , and it is significant in this case?
4. If causative agent is *M. tuberculosis*
  - 4.1 How to identify this organism
  - 4.2 How do determine drug susceptibility test
  - 4.3 What is the pathogenesis of the disease?
  - 4.4 What is the Mode of transmission of this disease?

## Case 2

A 46 year-old female with one week history of influenza like illness admitted to the hospital for worsening pneumonia, hypoxia. Oseltamivir was commenced on the day prior to ICU admission. A chest X-ray showed left lobar pneumonia and right side alveolar infiltrates. Pharyngeal swabs taken on day one in the ICU came back positive for influenza A (H3N2) within four days. The patient returned to the ICU two days later with progressive short-ness of breath, a worsening productive cough, and fever

### Physical and Laboratory examination

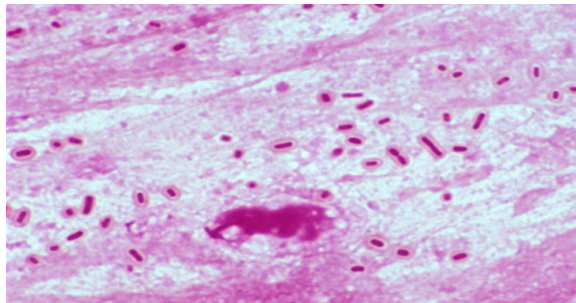
VS: Temp 39.0°F, RR 22-24/min, PR 104/min, BP 100/60 mm Hg

Hb 9.1 g/dl

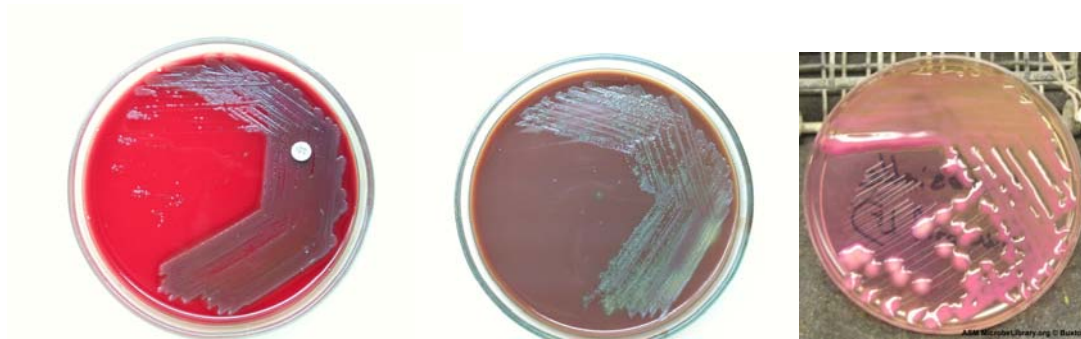
Hct 27.3 %

WBC  $4 \times 10^9$  cell/l (PMN 84%, Lymphocyte 12%)

Gram stain

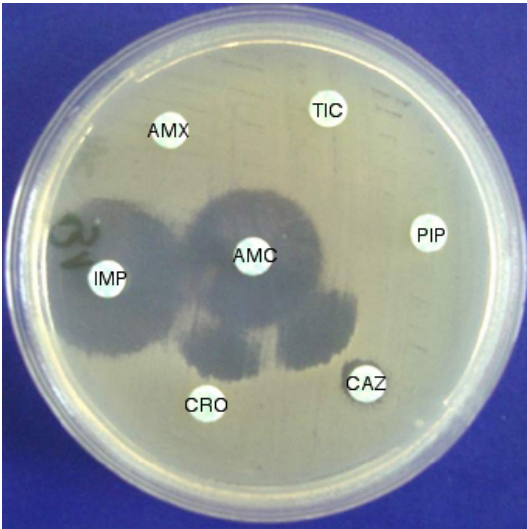


Colony morphology & biochemical test





### Drug susceptibility test



1. Identify of the organism. Is it the causative agent?
2. Explain the pathogenicity of the disease and the virulence of these organisms?
3. How to report and interpret the susceptibility results?
4. Why the susceptibility test of CAZ (ceftazidime) and CRO (ceftriaxone) showed the inhibition zone like this
5. Explain the mechanisms of drug resistant