

Medical Image of the Week: *Actinomyces*

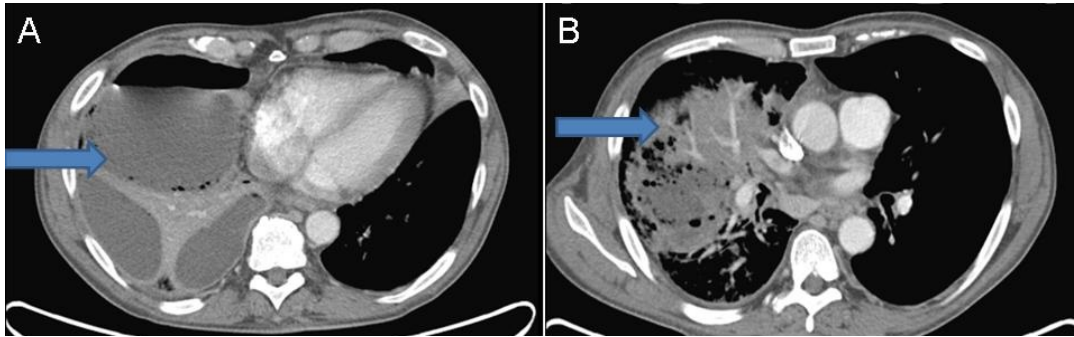


Figure 1. Thoracic CT scan showing right-sided necrotizing pneumonia, lung abscess and empyema (arrows).

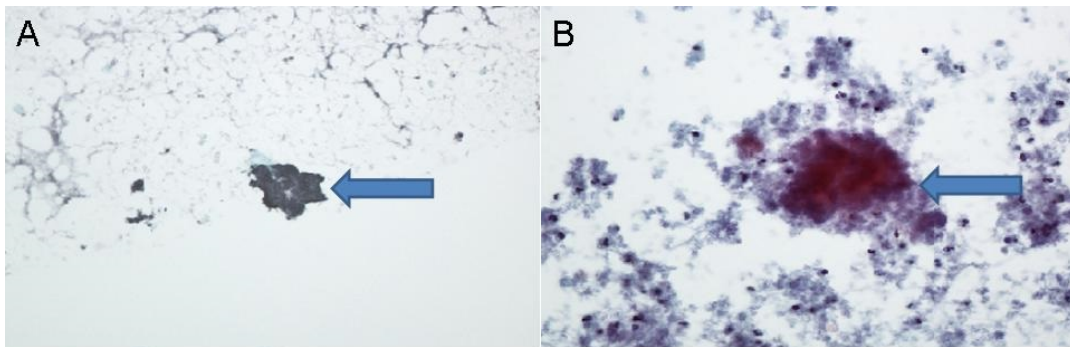


Figure 2. Cytospin and cell block of right lower lobe bronchoalveolar lavage fluid stained with Grocott-Gomori's (or Gömöri) methenamine silver (GMS) stain showing positive filamentous organisms consistent with *Actinomyces* species within a background of inflammatory cells.

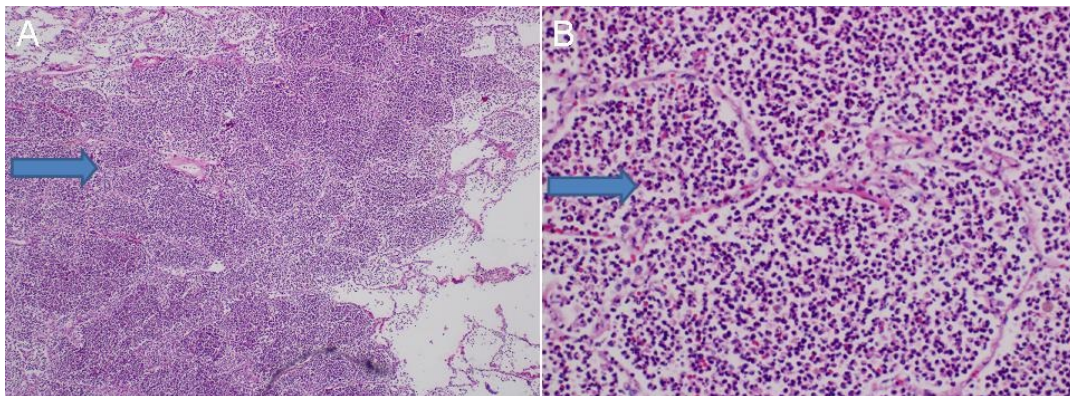


Figure 3. Low (Panel A) and high power view (Panel B) of the lung showing alveolar septa filled with predominantly acute (neutrophilic) infiltrate.

A 55-year-old man with history of tobacco and alcohol abuse, presented with unresolving pneumonia despite treatment with moxifloxacin. It was thought to be possible coccidioidomycosis and an azole was started. However, he returned with increasing dyspnea and hypoxemia. He had leukocytosis with a thoracic CT revealing a loculated empyema, multifocal necrotizing infection and a large intrapulmonary abscess (Figure 1). He was admitted to MICU, intubated and ventilated. He was in septic shock requiring fluid resuscitation, vasopressors, and broad antibiotics. Bronchoscopy revealed erythematous and edematous airways, with drainage of over one liter of purulent fluid. A chest tube was placed to drain pleural fluid with removal of around two liters of blood-tinged, purulent fluid. His condition worsened with development of disseminated intravascular coagulation leading to hemorrhagic shock. He arrested and died. Gram stain on bronchoalveolar lavage fluid showed mixed gram negative and gram variable rods, and cultures grew lactobacillus species. GMS stain revealed filamentous organisms consistent with *Actinomyces* (Figure 2).

Necrotizing pneumonia is usually secondary to aspiration of oral bacterial flora, and is usually associated with severe sepsis and acute respiratory failure. The obstruction of the bronchus and blood vessels corresponding to a lung segment leads to decreased perfusion that is often shown on contrast enhanced CT scan. Hence, systemic antibiotic treatment alone is usually not effective. The management of necrotizing pneumonia is multidisciplinary; including adequate antibiotic therapy, mechanical ventilation, closed pleural drainage and supportive care. Despite the serious morbidity, massive parenchymal damage and prolonged hospitalizations, long-term outcome following necrotizing pneumonia is good with multidisciplinary care. If initial medical therapy fails, surgery is a reasonable option. Resection of gangrenous lung parenchyma and drainage of pleural empyema can lead to recovery in up to 80% of patients. Rarely, lobectomy can be a salvage operation. Outcome is affected by the severity of disease and underlying comorbidities. It should be considered once operative risk is acceptable.

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References

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