LUNG ABSCESS

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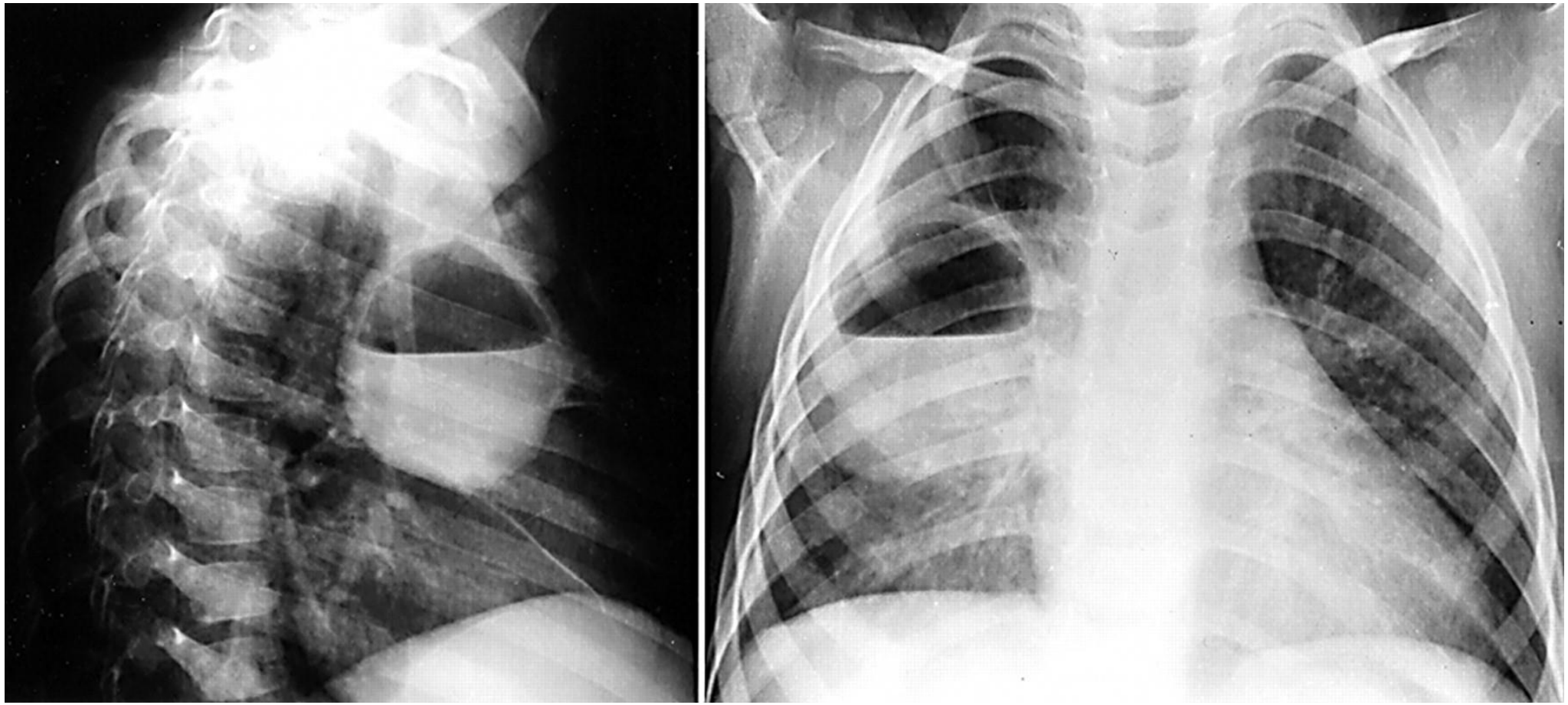
FK – UMM

Definition

A localized area of lung suppuration leading to necrosis of the pulmonary parenchyma, with or without cavity formation.

- Lung abscesses may be single or multiple
- Acute or chronic (>1 month)
- Primary or secondary
- Occur spontaneously, but, more commonly, an underlying disease exists
- Lung abscess is now rare in the developed world
- High mortality of up to 20–30%.



Lung Abscess

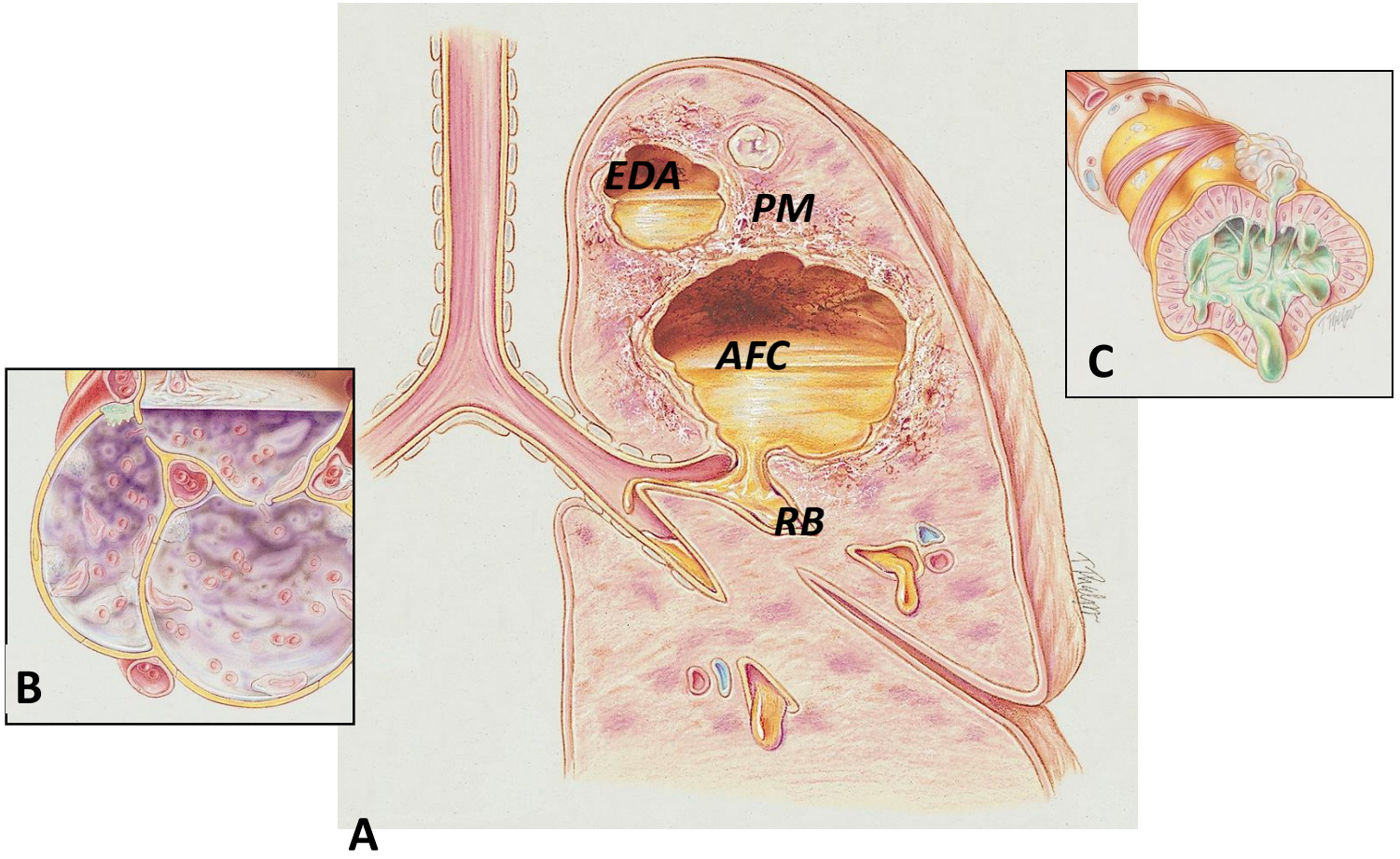


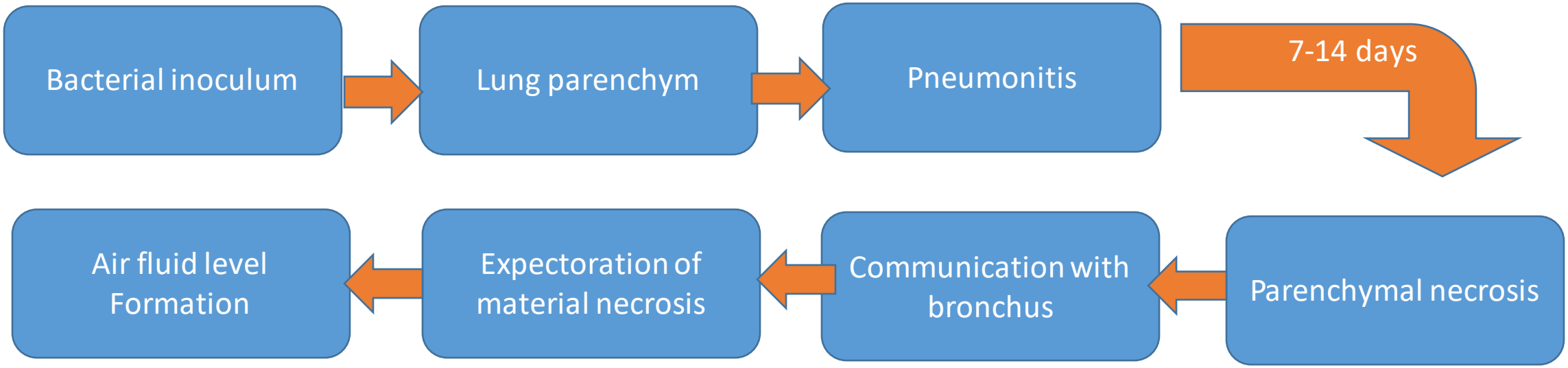
Figure 16-1. Lung abscess. A, Cross-sectional view of lung abscess. *AFC,* Air-fluid cavity; *RB,* ruptured bronchus (and drainage of the liquified contents of the cavity); *EDA,* early development of abscess; *PM,* pyogenic membrane. Consolidation (B) and excessive bronchial secretions (C) are common secondary anatomic alterations of the lungs.

Pathophysiology

The result of aspiration pneumonia and share the same predisposing factors:

- Dental disease
- Impaired consciousness—alcohol, post-anaesthesia, dysphagia, trauma capitis, stroke, seizure & eosophageal disease (achalazia, GERD, Obstruction)
- Diabetes mellitus
- Lung cancer (with bronchial obstruction)
- Secondary to pneumonia (cavitation occurs in 16% of *Staphylococcus aureus* pneumonia), hemotogemous spreading: liver abscess; infradiaphragmatica abscess, foreign bodies
- Immunocompromise (chemotherapy, malnutrition, multiple trauma)
- Septic embolization (right heart endocarditis due to, e.g. *Staphylococcus aureus* in IV drug users).

Pathophysiology



Presentation

- Often insidious onset
- Productive cough, haemoptysisBreathlessness
- Fevers
- Night sweats
- Non-specific features of chronic infection, anaemia, weight loss, malaise (especially in the elderly)
- Foul sputum or purulent pleural fluid

Physical Diagnostic

Vital signs

- Increased respiratory rate
- Increased heart rate, cardiac output, blood pressure
- Chest pain/decreased chest expansion
- Cyanosis
- Cough, sputum production, and hemoptysis
- Chest assessment findings
  - Increased tactile and vocal fremitus
  - Dull percussion note
  - Bronchial breath sounds
  - Diminished breath sounds
  - Whispered pectoriloquy
  - Pleural friction rub

Investigations

Microbiological culture

Ideally before commencing antibiotics

- *Blood cultures*
- *Sputum* or bronchoscopic specimen (including for AFBs)

Sputum examination

- Gram-positive organism
  - *Streptococcus*
- Anaerobic organisms
  - *Peptococcus*
  - *Peptostreptococcus*
  - *Bacteroides*
  - *Fusobacterium*

Imaging Finding → CXR and CT:

- Increased density
- Cavity formation
- Cavity with air-fluid levels
- Fibrosis
- Pleural effusion

(b)

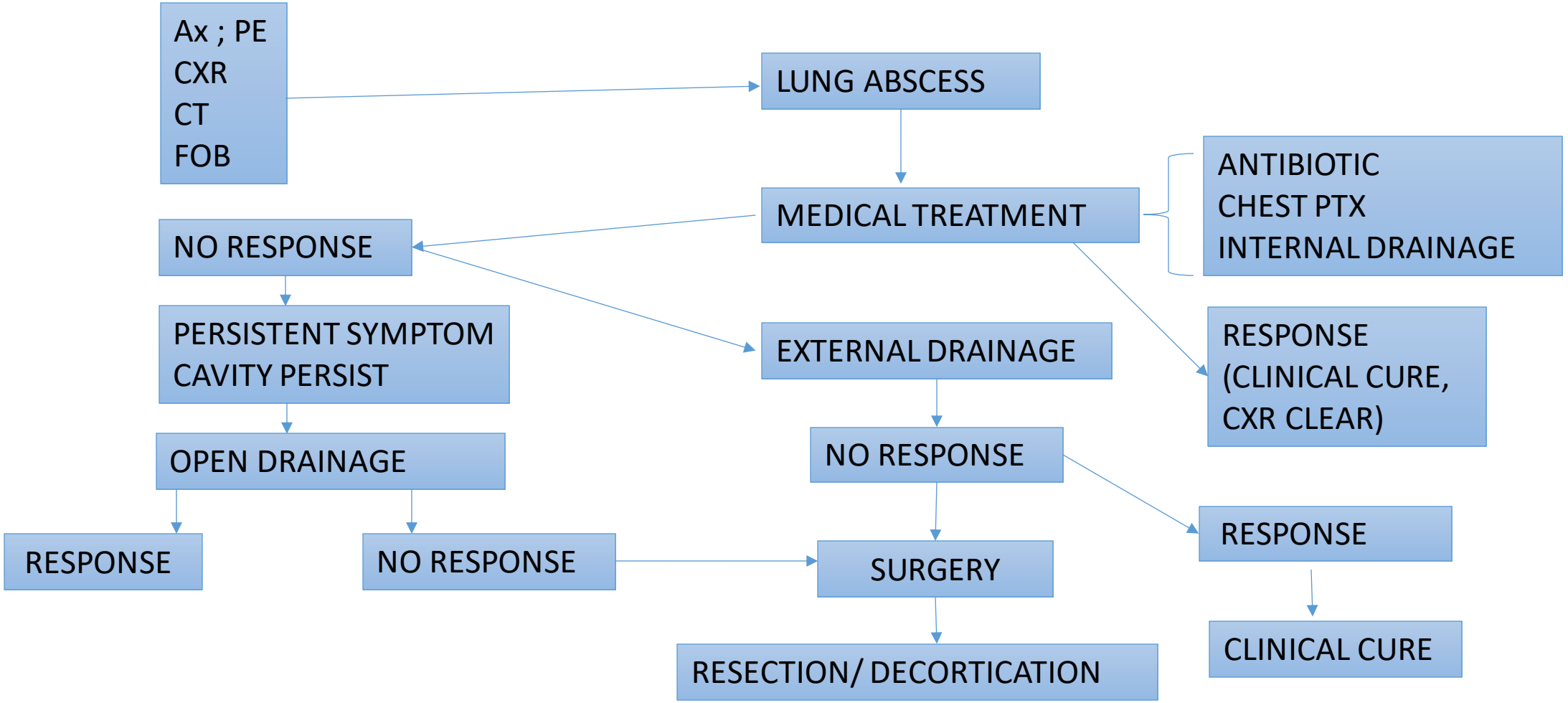
Diagnostic

- X-ray : Cavity with “air-fluid level”
- CBC : leukocytosis, Anemia , etc
- Cultures : Sputum & Blood
- Anaerobic culture is important
- Chest CT
- Sputum cytology
- Sputum Acid Fast Bacilli
- Bronchoscopy to Rule out malignancy

Treatment

- Antibiotic cover is required for both aerobic and anaerobic infection, including β-lactam/β-lactamase inhibitors, e.g. co-amoxiclav and clindamycin.
- Metronidazole to cover for the **Anarobes**
- No data to guide length of antibiotic treatment but consensus that long courses are needed. Common practice is 1–2 weeks IV treatment, with a further 2–6 weeks oral antibiotics, often until outpatient clinic review
- Postural drainage
- Bronchoscopic drainage

Algoritm management of lung abscess



Indications for Surgery

- Massive hemoptysis
- Refractory to Medical treatment
- Large cavity with thick walls
- Complicated by malignancy
- Empyema develops
- Chronicity, Recurrence
- Remaining residual cavity

Prognosis

- Cure rate is 85% in the absence of underlying disease.
- Mortality is reported as high as 75% in immunocompromised patients.
- The prognosis is much worse in the presence of underlying lung disease, with increasing age and large abscesses (>6 cm) with *Staphylococcus aureus* infection.

Thank for your attention