BRONCHIAL ANATOMY

AN ANATOMICAL REMINDER ABOUT THE DIFFERENT LOBES AND SEGMENTS

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Trachea

Main right bronchus

Main left bronchus
Right bronchography
Left bronchography
Left fissura

Left view
The fissura are sometimes visible on the lateral view.

On the front view only small fissura are sometimes visible.
Right superior lobe pneumonia

Small fissura

Large oblique fissura posterior part
Right inferior pneumonia

Large oblique fissura
Middle lobe pneumonia
External segment of middle lobe pneumonia
External segment of middle lobe pneumonia
Left superior lobe pneumonia
Left inferior pneumonia
Left inferior pneumonia

Left scissura
Bronchial syndrome
Atelectasis
Draining bronchus
Bronchiectasis
Atelectasis

These are the consequence of an obstruction of the bronchus by an intrinsic or extrinsic element (foreign body, benign or malignant tumor, acute or chronic inflammatory stenosis compression by adenopathy or tumor…)

The alveolar air progressively disappears and the lung tissue retracts. This retraction can involve the segment, the lobe or the entire lung.
Main etiologies of atelectasis

• Bronchial cancer
• Tuberculosis
• Extrinsic compression by adenopathy or malignant tumor
• Foreign body (+++ young children)
• Asthma
• Chronic bronchitis
• Viral or bacterial pneumonia
• Atelectasis after thoracic or abdominal surgery, after traumatism

• Many other rare etiologies: benign tumor, lymphoma, bronchus metastasis, acute bronchiolitis, inflammatory granuloma regardless of the etiology, broncholithiasis, bronchiolitis obliterans, mucoviscidosis…
The radiologic image is a consolidation which is:
- Systematised (close to a fissura)
- Retractile (loss of volume)
- Homogeneous
- Without aeric bronchogram
- With a varied size: segment, lobe, entire lung
Tobacco = 40 pack-years
AFB sputum x 3 negative

Right superior lobe atelectasis by cancer
Right superior lobe atelectasis by cancer
Right inferior lobe atelectasis
Middle lobe atelectasis
Partial atelectasis of the right superior lobe by cancer (Golden sign)
Middle lobe and right inferior lobe atelectasis
Man, 56 years old. High fever, right abdominal and thoracic pain, muscular defense of the right hypochondrium, x-ray: Middle lobe atelectasis
Liver abscess: the reduction of right hemidiaphragm mobility leads to atelectasis above the diaphragm «passive atelectasis»
Similar case: The liver abscess resulted in inferior lobe atelectasis.
Tobacco = 60 pack-years. Haemoptysis. thoracic pain and dyspnea
- AFB sputum x 3 negative

Left superior lobe atelectasis by cancer
right superior lobe atelectasis by cancer

( A. Khallil and coll. EMC 386 C10 2005)

Notice the association with a big hilar round mass
Tobacco = 40 pack-years. Hemoptisy.
Left anterior thoracic pain and cough.
Recent weight loss and asthenia - AFB sputum x 3 negative

Left superior lobe atelectasis by cancer

Notice the round mass on the left hilus
The association of an atelectasis with a round mass strongly suggests cancer.
Left inferior lobe atelectasis
1 year old child with TB primary phase. Bilateral adenopathies and left inferior atelectasis: the left mediastinum adenopathies compress left inferior bronchus.
Whole left lung atelectasis
Pleural effusion

Left atelectasis

Retraction

Pushing back
Draining bronchus

TB cavity +++
- bacterial non-TB abscess +
TB cavity
Notice the draining bronchus and right axillary infiltrate
TB cavity with a draining bronchus
Bronchectasis

This is a bronchus disease characterised by a permanent increase of the bronchus calibre. The cartilaginous framework of the bronchus wall is destroyed or broken up.
Bronchectasis Etiologies

• **Localised**
  - Tuberculosis, bacterial or viral infection, especially in children (measles, whooping cough..)
    - foreign body
    - Bronchus stenosis, extrinsic compression (adenopathy)

• **Diffuse**
  - Tuberculosis, bacterial or viral infection, especially in children (measles, whooping cough..)
    - mucoviscidosis
    - other congenital diseases: Situs inversus, immotile cilia syndrome
    - Disglobulinemy, chronic immune deficit, chronic auto-immune affections…
Bronchectasis
Bronchectasis
Rail picture: Cylindric bronchectasis
Unilateral bronchiectasis
Bilateral bronchectasis
Bilateral bronchectasis
Digital hippocratism is often associated with bronchectasis.
Woman, 25 years old, cough and chronic expectoration
Measles at 6 years old
Woman, 54 years old, recurrent severe bronchopneumonia at 2 years old
**Microbiologie**

**Résultats des tests**

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...after antibiotic therapy against *Pseudomonas aeruginosa*
Young woman, 20 years old, recurrent bronchus infections from a very early age, and gradual respiratory deficiency

MUCOVISIDOSIS
(1 case/2000 births in Europe)
Young boy, TB primary phase at 1 year old (1945)
60 years later…(2006)
...Bronchectasis post-TB