

Histopathology

Atelectasis

Lecture (1)

Atelectasis

Your airways are branching tubes that run throughout each of your lungs. When you breathe, air moves from the main airway in your throat, sometimes called your windpipe, to your lungs. The airways continue branching and get progressively smaller until they end in little sacs called alveoli.

Your alveoli help to exchange the oxygen in the air for carbon dioxide, a waste product from your tissues and organs. In order to do this, your alveoli must fill with air.

When some of your alveoli *don't* fill with air, it's called "atelectasis."

Depending on the underlying cause, atelectasis can involve either small or large portions of your lung.

Atelectasis is different from a collapsed lung (also called **pneumothorax**).

A collapsed lung happens when air gets stuck in the space between the outside of your lung and your inner chest wall. This causes your lung to shrink or, eventually, to collapse.

While the two conditions are different, pneumothorax can lead to atelectasis because your alveoli will deflate as your lung gets smaller.

Histopathology

Atelectasis

What are the symptoms?

The symptoms of atelectasis range from nonexistent to very serious, depending on how much of your lung is affected and how fast it develops. If only a few alveoli are involved or it happens slowly, you might not have any symptoms.

When atelectasis involves a lot of alveoli or comes on quickly, it's hard to get enough oxygen to your blood. Having low blood oxygen can lead to:

- trouble breathing
- sharp chest pain, especially when taking a deep breath or coughing
- rapid breathing
- increased heart rate
- blue-colored skin, lips, fingernails, or toenails

Sometimes, pneumonia develops in the affected part of your lung. When this happens, you can have the typical symptoms of pneumonia, such as a productive cough, fever, and chest pain.

What causes it?

Many things can cause atelectasis. Depending on the cause, atelectasis is categorized as either **obstructive or non-obstructive**.

Histopathology

Atelectasis

Causes of obstructive atelectasis

Obstructive atelectasis happens when a blockage develops in one of your airways. This prevents air from getting to your alveoli, so they collapse.

Things that can block your airway include:

- ❖ inhalation of a foreign object, such as a small toy or small pieces of food, in an airway
- ❖ mucus plug (buildup of mucus) in an airway
- ❖ tumor growing within an airway
- ❖ tumor in the lung tissue that presses on the airway

Causes of non-obstructive atelectasis

Non-obstructive atelectasis refers to any type of atelectasis that isn't caused by some kind of blockage in your airways.

Common causes of non-obstructive atelectasis include:

- ❖ *Surgery*
- ❖ *Pleural effusion*
- ❖ *Pneumothorax*
- ❖ *Lung scarring*
- ❖ *Chest tumor*
- ❖ *Surfactant deficiency*

Histopathology

Atelectasis

How is it diagnosed?

To diagnose atelectasis, your doctor starts by reviewing your medical history. They look for any previous lung conditions you've had or any recent surgeries.

Next, they try to get a better idea of how well your lungs are working. To do this, they might:

- **check your blood oxygen level** with an oximeter, a small device that fits on the end of your finger
- **take blood from an artery**, usually in your wrist, and check its oxygen, carbon dioxide levels, and blood chemistry with a blood gas test
- **order a chest X-ray**
- **order a CT scan** to check for infections or blockages, such as a tumor in your lung or airway
- **perform a bronchoscopy**, which involves inserting a camera, located on the end of a thin, flexible tube, through your nose or mouth and into your lungs