JAMES, Emem Grace

18/MHS01/192

ANA 204

COVID-19 and the Upper Respiratory Tract

The Upper respiratory tract is also known as the conducting portion of the Respiratory System.

The distinctive feature of the conducting portion which separates it from the respiratory portion is the presence of cilia.

The conducting portion of the respiratory system includes

* Nasal Cavity
* Nasopharynx
* Larynx
* Trachea
* Bronchi
* Terminal bronchus

All of which can be divided into

* Mucosa subdivided into epithelial layer, lamina propria, muscularis mucosa;
* Submucosa;
* Muscularis mucosa and;
* Adventicia.

The infection generally starts in the nose. Once inside the body, the coronavirus invades the epithelial cells that line and protect the respiratory tract but if the virus treks down the windpipe to the peripheral branches of the respiratory tree and lung tissue, it can trigger a more severe phase due to the pneumonia-causing damage inflicted directly by the virus plus secondary damage caused by the body’s immune response to the infection.

Your body is immediately trying to repair the damage in the lung as soon as it’s happening. Macrophages act as first-responders

In some more-severe coronavirus infections, the body’s effort to heal itself may be too robust, leading to the destruction of not just virus-infected cells, but healthy tissue. Damage to the epithelium lining the trachea and bronchi can result in the loss of protective mucus-producing cells as well as the tiny hairs, or cilia, that sweep dirt and respiratory secretions out of the lungs.

“You have no ability to keep stuff out of the lower respiratory tract,” Taubenberger said. As a result, the lungs are vulnerable to an invasive secondary bacterial infection. Potential culprits include the germs normally harbored in the nose and throat, and the antibiotic-resistant bacteria that thrive in [hospitals](https://aac.asm.org/content/60/10/6115), especially the moist environments of mechanical ventilators.

Secondary bacterial infections represent an especially pernicious threat because they can kill critical respiratory tract stem cells that enable tissue to rejuvenate. Without them, “you just can’t physically repair your lungs. Damaged lungs can starve vital organs of oxygen, impairing the kidneys, liver, brain and heart.