Source
- Respiratory droplets
- Fecal contamination
- Other

SAR-COV-2

Entry in lungs

Alveoli: The important part of respiratory system whose function is to exchange O_2 and CO_2 molecules from blood stream.

Alveoli

Entry into alveoli

Alveoli: Hollow cup-shaped cavity.

ROS and Protease

Type II Pneumocyte Cell

ROS: 1. Reactive Oxygen Species.

2. Product of cellular metabolism.

3. Useful for maintaining redox homeostasis.

Interstitium

[Contageous liquid filled space]

ROS

Protease

SAR-COV-2

Neutrophil & Macrophages:

- Responsible for immune system.
- Neutrophils are stimulated to enter lungs through Interstitium.
- Protective role in lung metabolism.

Macrophage

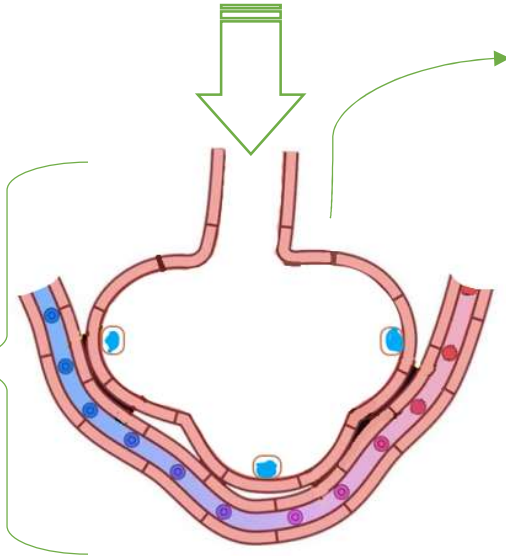
As SAR-COV-2 enters the lung, inflammatory process is the first line of defence of human body. This process is occurred when tissues are injured by bacteria, viruses, heat, toxins, etc.

These damaged cells release chemicals. These chemicals cause blood vessels to leak fluid into tissue causing swelling.

As fluid leaks into tissue, it causes:

- **Vasodilation**: Due to smooth muscles in the vessel wall, widening of the vessel takes place called 'Vasodilation'.
- **Increase in vascular permeability**: There is a balance between fluid leaving and re-entering. Inflammation shifts this balance.

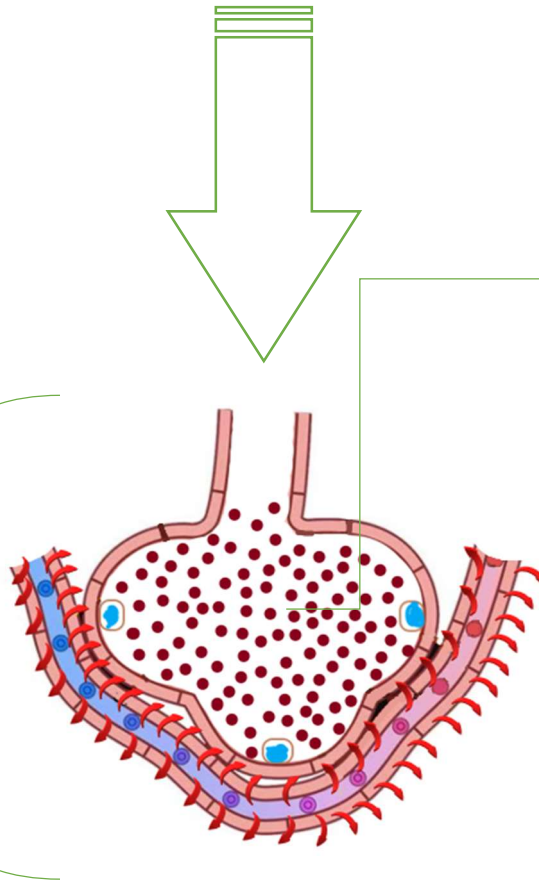
In inflammatory response.

[Parts]

In alveolar edema, due to fluid accumulation, there is increased work of breathing.

Leads to

Difficulty in breathing

Alveolar Edema

Vasodilation and increased vascular permeability results in the fluid build up in alveolar spaces. This is called as **'Alveolar edema'**.

SIRS

In some cases, an inflammatory state affecting the whole body called **'Systemic Inflammatory Response Syndrome'** occurs. It is the inflammatory response.

SAR-COV-2

Neutrophil

Stimulates

Inflammatory response

Macrophage

Leads to

SIRS

Blood

Low Blood Pressure

Leads to

Leads to

Low Blood Volume

Leads to

Low/inadequate perfusion

Leads to

Multisystem Organ Failure (MSOF)

Circulatory System

In the blood circulatory system, inflammatory response leads to flow blood out of walls of arteries and veins. It leads to decrease blood pressure. It causes low blood volume. That leads to low perfusion of the blood.

Perfusion: Passage of fluid in the circulatory system.

It is measured as '**vol. of blood/unit time/unit tissue mass**'.