

# Pulmonary edema lungs



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## Outline of pulmonary edema:

Pulmonary edema is the inflammation of the lungs that occurs due to the excessive accumulation of fluids in the lungs (alveoli) which results in poor exchange of gases which can cause dyspnea and finally respiratory and cardiac failure.

Symptoms: The common symptoms of pulmonary edema include Dyspnea i. e. difficulty in breathing, shortness of breath, noisy and labored respirations rales, blood in cough, restlessness, anxiety, palor (paleness of skin).

Diagnosis: It can be diagnosed by physical examination and knowing the patient's medical history. By checking the wheezing sounds that are whistling or musical sound that can be heard without a stethoscope and inspiratory crackling sound that can be heard at the end of deep breath with the help of stethoscope and the characteristic third sound of the heart which can be seen in the cases of cardiogenic pulmonary edema patients. Apart from those general blood tests like liver enzymes, electrolytes, complete blood count etc. is done than a final confirmation is made by the X-ray of the lungs.

Pulmonary Edema is a disease that affects the heart finally and begins in the lungs. Due to the inadequate pumping of the left ventricle, fluid accumulates in the spaces outside the blood vessels in the tissues of the lungs. It leads to a complication of heart disorders, sometimes acting as the first sign of coronary heart disease, and most commonly associated with congestive heart failure. It can be chronic or develop suddenly and quickly become life

threatening. As large amounts of fluid suddenly shift from the pulmonary blood vessels to the lungs then pulmonary edema becomes life-threatening.

When the heart begins to fail, the veins going through the lungs build up pressure and in turn the lungs pressure begins to rise which results in the building up of fluid being pushed into the alveoli. This fluid interrupts our normal oxygen flow through the lungs.

Results and symptoms of pulmonary edema:

Pulmonary edema occurs due to excessive accumulation of fluids and foam into the alveoli of the lungs when the pulmonary blood vessels are engorged. It can often be associated with congestive heart failure. It begins primarily with the building up of fluids in the microscopic alveoli of the lungs causing poor respiratory exchange resulting in Dyspnea with noisy and labored respirations. Rales which are powdery or gravelly sounds can be heard with stethoscope and some patients even cough up blood-tinged sputum. It occurs when the heart becomes damaged or weakened; as a result unable to pump blood to all the parts of the body, typically beginning with the left heart failure as a consequence of the damaged left ventricle which leads to backing up of the blood first in the pulmonary vessels and finally in systemic vessels. As a consequence blood fluids are forced into the body tissues due to increased pressure in the vessels causing a swelling known as edema. If it occurs in the alveoli of the lungs it is termed as pulmonary edema. Finally it can lead to congestive heart failure.

Shortness of breath; Difficulty in breathing:

Diseases like pulmonary edema leads to shortness of breath or difficulty in breathing which is known as Dyspnea which occurs due to poor respiratory exchange in the lungs. It causes labored and noisy respirations often associated with powdery or gravelly sounds known as rales when checked with the stethoscope. Dyspnea is not a primary illness but a condition brought about by a number of medical, traumatic and environmental causes. It can be related to Lung diseases, heart conditions, allergic reactions, CO poisoning, etc. In most cases it occurs when a disease has caused some kind of direct interference with either the flow of air into and out of the lungs or with the exchange of gases within the lungs. In typical dyspnea, as in the case of asthma the problem causing interference originates in the lungs itself.

Dyspnea can be classified into acute dyspnea with sudden onset can be caused by anaphylactic shock, cardiac arrhythmias trauma, etc. and chronic dyspnea which can be caused by Asthma, Bronchitis, COPD, Neuromuscular disorders, etc.

Air hunger or feeling of drowning, Grunting or gurgling sounds with breathing, Wheezing

As a sign of congestive heart failure the patient would wish to remain in a seated or semi-reclined position which allows less labored respiration. The patient should be kept calm to conserve body heat. These oxygen hungry patients will accept oxygen therapy without difficulty.

In severe lung diseases like an Asthma attack, the small bronchioles becomes narrower due to the contraction of the smooth muscles that make  
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up the airway apart from the overproduction of thick mucus leading to the restriction of airflow. The airflow is restricted in mainly in one direction such as, during inhalation, the expansion of lungs exerts an outward force resulting in the increase in the diameter of the airway, allowing air to flow into the lungs. During exhalation the opposite occurs resulting in the trapping of the stale air into the lungs which requires forceful exhalation of air by the patient, producing the characteristic wheezing sound associated with asthma. Wheezing sounds are whistling or musical sounds that can be heard without a stethoscope.

Gurgling is caused often due to a foreign object, or blood and other fluids in the trachea.

It is believed that cardiac murmurs are associated with the possibility of heart failure which is not correct as in about 50 % of the heart failure cases there is no murmur observed. Still a cardiologist should take note seriously if any murmur is present in the patient. In the diagnosis of heart failure Gallop rhythm (one can imagine the sounds of hooves of horse smoothly running at full speed) is very typical and significant.

SOB with lying down, you may need to sleep with you head propped:

The affects of the body position of a person sometimes gives an idea about the underlying disorder causing dyspnea. For example in platypnea, that is dyspnea while sitting gives indications of a liver disease. The worse type of Dyspnea is when the patient is lying down and suffering from shortness of breath, which is associated with heart disease or paralysis of the diaphragm. It is called as orthopnea. Another type of dyspnea is PND (Paroxysmal

nocturnal dyspnea) which occurs during sleep forcing the patient to wake up gasping for breath; usually relieving the patient if he / she sit up or stands. It may indicate the dysfunctioning of the left ventricle of the heart, narrowing of the mitral valve or hypertension. If a patient is suffering from orthopnea he sleeps with the head propped up.

Cough: It is an annoying symptom which can occur as a result of many causes such as pulmonary edema, tuberculosis, Bronchitis, Asthma, etc.

Anxiety: Factors like excessive worry, nervousness, instability, nausea, etc. are the major symptoms of anxiety.

Restlessness: It can be caused by a number of factors such as anxiety, nervousness, insomnia, hyperactivity, etc.

Excessive sweating: Sweating is due to the presence of sweat glands under our skin, which is controlled by the sympathetic nervous system of our body and whenever our body temperature rises sweating is stimulated. Thus, it controls the body temperature.

Emotional stress also stimulates sweating.

Palor or pale coloration or cyanosis of the parts will also take place during any respiratory or cardiac attack.

Sympathetic over stimulation leads to symptoms like palor, sweating, and tachycardia during heart failure.

Additional symptoms with progression of the disease:

Nasal flaring: It is an indication of breathing difficulty caused by the enlargement of the nostril opening during breathing; as a result the total airway resistance is reduced.

Inability to speak: The patient may not be able to speak due to pulmonary obstruction or cardiac failure.

Decrease in levels of awareness: the level of awareness or consciousness of the patient will also go down during any respiratory or cardiac attack.