Asthma

Asthma is a common form of obstructive lung disease characterized by bronchial hyperresponsivness in which the airways become inflamed, produce excess mucus, and constrict to triggers such as cold air, dust, pollen, exercise or smoke. Asthma is more common in those with other atopic disease like eczema or hay fever. Unlike other obstructive lung diseases, a key component of asthma is the reversibility of symptoms. Curschmann’s spirals and Charcot Leyden crystals can be found in the sputum of asthmatics and chronic asthma can lead to smooth muscle hypertrophy of the airways. Signs and symptoms include cough, wheezing, initially decreased PaCO2 levels, and pulsus paradoxus. A methacholine challenge test can be used to assist in the diagnosis of asthma and common treatment modalities include beta 2 agonists and corticosteroids.



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Obstructive lung disease
Broccoli Choking Lungs
Asthma is a form of obstructive lung disease characterized by increased residual volume and decreased forced vital capacity. Obstructive lung diseases commonly have a decreased FEV1/FVC ratio as opposed to restrictive lung diseases.

Bronchial Hyperresponsiveness
Broccoli Hiker
Asthma is characterized by bronchial hyperresponsiveness in which the airways become inflamed, produce excess mucus, and constrict to triggers such as cold air, dust, pollen, exercise or smoke.

History of Atopic Disease
A-top-hat
A history of atopic disease is a strong risk factor for the development of asthma with asthma occurring at a much greater rate in those who have either eczema or hay fever.

Beta2 agonists
Beta-fish in (2) Tutu
β₂ agonists, like albuterol, cause bronchodilation and are one of the main treatment modalities of asthma.

Corticosteroids
Quarter-on-steroids
Corticosteroids are one of the main treatment modalities for moderate to severe asthma. Side effects of inhaled corticosteroids can include sore throat, oral candidiasis and hoarseness.

Curschmann's spirals
Cursing-man Spiraling downward
Curschmann’s spirals refer to parts of desquamated epithelium that form mucus plugs in the sputum of asthmatic patients.

Hypertrophy of smooth muscle
Hiker-trophy with Smoothie
Chronic asthma can lead to smooth muscle hypertrophy of the airways which contributes to further bronchoconstriction.

Reversible
Cart traveling in Reverse
A key component to the diagnosis of asthma is demonstrating the reversibility of symptoms. If the FEV1 measured via spirometry improves more than 12% following administration of a bronchodilator, this is supportive of the diagnosis.

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Charcot Leyden crystals

Charcoal Crystals

Charcot Leyden crystals are microscopic crystals found in people who have allergic diseases such as asthma or parasitic infection and are indicative of a disease involving eosinophilic inflammation or proliferation.

Methacholine challenge

Moth-cola

This is a medical test used to assist in the diagnosis of asthma in which the patient breathes in nebulized metacholine. Methacholine provokes bronchoconstriction and people with pre-existing airway hyperreactivity, such as asthmatics, will react to lower doses of drug.

Wheezing

Weasel

Narrowing of the airways can cause wheezing, which is one of the classic symptoms of asthma.

Cough

Coughing Coffee-pot

Coughing is one of the major symptoms of asthma and is usually worse at night.

Initially decreased PaCO2

Down-arrow Partial-pressure-gauge CO₂

Individuals with a bout of asthma commonly have decreased PaCO₂ levels due to hyperventilation. Increased PaCO₂ levels are a sign of respiratory muscle fatigue, decompensation and worsening respiratory distress.

Pulsus paradoxus

Parachuting Pair-of-ducks

Pulsus paradoxus is defined as a drop of more than 10 mm Hg in systolic blood pressure during inspiration. Severe asthma can cause pulsus paradoxus.

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