



Airway Clearance Indications: Obstructive Airway Diseases

Aspergillosis

Aspergillosis is the name given to fungal infections caused by the mold *Aspergillus*. *Aspergillus* is a very common environmental mold found in soil, dust, plants, building materials and even in some food products. It is used in digestive supplements for livestock and is the main ingredient in a number of over-the-counter remedies for digestive gas. For most people, exposure to *Aspergillus* is as harmless as it is inevitable—the mold is practically impossible to avoid and most of us breathe it in every day. However, on occasion a susceptible individual can become infected with the mold and develop aspergillosis. Any person can develop aspergillosis, especially ABPA, but it is far more common in people with underlying disorders of the respiratory system such as cystic fibrosis or individuals who are immunocompromised.

Aspergillosis is not a reportable disease, but the Centers for Disease Control estimate that the incidence is about 1-2 in 100,000 and is limited primarily to the high risk groups noted above.

What Happens in Aspergillosis?

There are many kinds of aspergillosis affecting many different body systems, but two of the most common forms affect the upper and lower respiratory tract. Allergic bronchopulmonary aspergillosis, or ABPA, occurs when an individual has an allergic reaction to *Aspergillus* exposure and develops symptoms similar to a bad, prolonged asthma attack. Chronic allergic inflammation and irritation of the airways can lead to mucus hypersecretion and pooling of pathogen-laden secretions, creating the perfect environment for a vicious cycle of inflammation, mucus secretion and subsequent infection to set in.

Pulmonary aspergilloma is a form of aspergillosis in which a fungus “ball” forms in the lungs. Often aspergillomas can be treated conservatively with anti-fungal medications, but if the fungal growth is causing significant bleeding into the lungs, surgical removal of the fungus ball may be required.

Generally, aspergillomas and other consequences of primary pulmonary *Aspergillus* infection will remain contained in the lungs. However, invasive aspergillosis, a condition in which the infection spreads beyond the respiratory system, is a very serious and potentially deadly infection that can affect nearly any organ system. Invasive aspergillosis is frequently accompanied by fungal pneumonia.



How Airway Clearance Therapy Can Help Aspergillosis

Keeping the airways clear of excess secretions and thereby reduce the incidence of inflammation and/or infection and is crucial to maintaining respiratory health. Airway clearance therapy using High Frequency Chest Wall Oscillation (HFCWO) has been demonstrated by clinical study to promote excess mucus clearance and improve bronchial drainage. Shear forces are created by HFCWO treatment that mechanically releases adhered secretions from the walls of the pulmonary tract. HFCWO has also been shown to reduce the viscosity of secretions which significantly improves mobilization of excess mucus. By replicating cough, HFCWO can effectively mobilize pulmonary secretions from smaller airways to larger airways where they can be coughed out, swallowed or suctioned.

Symptoms of Aspergillosis

- Cough
- Wheezing
- Chest pain
- Fever
- Hemoptysis (coughing up blood)
- Presence of fungus ball(s) on x-ray

For More Information on Aspergillosis:

1. Medline Plus fact sheet: <http://www.nlm.nih.gov/medlineplus/ency/article/001326.htm>
2. Fact sheet from the Centers for Disease Control:
http://www.cdc.gov/nczved/dfbmd/disease_listing/aspergillosis_gi.html
3. Fact sheet from the Mayo Clinic: <http://www.mayoclinic.com/health/aspergillosis/DS00950>
4. Information from eMedicine: <http://emedicine.medscape.com/article/1092247-overview>