Fungal Sinusitis

What Is A Fungus? Fungi are plant-like organisms that lack chlorophyll. Since they do not have chlorophyll, fungi must absorb food from dead organic matter. Fungi share with bacteria the important ability to break down complex organic substances of almost every type (cellulose) and are essential to the recycling of carbon and other elements in the cycle of life. Fungi are supposed to “eat” only dead things, but sometimes they start eating when the organism is still alive. This is the cause of fungal infections; the treatment selected has to eradicate the fungus to be effective.

In the past 30 years, there has been a significant increase in the number of recorded fungal infections. This can be attributed to increased public awareness, new immunosuppressive therapies (medications such as cyclosporine that “fool” the body's immune system to prevent organ rejection) and overuse of antibiotics (anti-infectives).

When the body's immune system is suppressed, fungi find an opportunity to invade the body and a number of side effects occur. Because these organisms do not require light for food production, they can live in a damp and dark environment. The sinuses, consisting of moist, dark cavities, are a natural home to the invading fungi. When this occurs, fungal sinusitis results.

There Are Four Types Of Fungal Sinusitis:

Mycetoma Fungal Sinusitis produces clumps of spores, a “fungal ball,” within a sinus cavity, most frequently the maxillary sinuses. The patient usually maintains an effective immune system, but may have experienced trauma or injury to the affected sinus(es). Generally, the fungus does not cause a significant inflammatory response, but sinus discomfort occurs. The noninvasive nature of this disorder requires a treatment consisting of simple scraping of the infected sinus. An anti-fungal therapy is generally not prescribed.

Allergic Fungal Sinusitis (AFS) is now believed to be an allergic reaction to environmental fungi that is finely dispersed into the air. This condition usually occurs in patients with an immunocompetent host (possessing the ability to mount a normal immune response). Patients diagnosed with AFS have a history of allergic rhinitis, and the onset of AFS development is difficult to determine. Thick fungal debris and mucin (a secretion containing carbohydrate-rich glycoproteins) are developed in the sinus cavities and must be surgically removed so that the inciting allergen is no longer present. Recurrence is not uncommon once the disease is removed. Anti-inflammatory medical therapy and immunotherapy are typically prescribed to prevent AFS recurrence.

Note: A 1999 study published in the Mayo Clinic Proceedings asserts that allergic fungal sinusitis is present in a significant majority of patients diagnosed with chronic rhinosinusitis. The

FROM THE PRACTICE OF:
Coastal Ear, Nose and Throat www.coastalearnoseandthroat.com
732-280-7855 3700 Route 33 Neptune, NJ 07753

MEMBER American Academy of Otolaryngology—Head and Neck Surgery

study found 96 percent of the study subjects with chronic rhinosinusitis to have a fungus in cultures of their nasal secretions. In sensitive individuals, the presence of fungus results in a disease process in which the body's immune system sends eosinophils (white blood cells distinguished by their lobulated nuclei and the presence of large granules that attract the reddish-orange eosin stain) to attack fungi, and the eosinophils irritate the membranes in the nose. As long as fungi remain, so will the irritation.

Chronic Indolent Sinusitis is an invasive form of fungal sinusitis in patients without an identifiable immune deficiency. This form is generally found outside the US, most commonly in the Sudan and northern India. The disease progresses from months to years and presents symptoms that include chronic headache and progressive facial swelling that can cause visual impairment. Microscopically, chronic indolent sinusitis is characterized by a granulomatous inflammatory infiltrate (nodular shaped inflammatory lesions). A decreased immune system can place patients at risk for this invasive disease.

Fulminant Sinusitis is usually seen in the immunocompromised patient (an individual whose immunologic mechanism is deficient either because of an immunodeficiency disorder or because it has been rendered so by immunosuppressive agents). The disease leads to progressive destruction of the sinuses and can invade the bony cavities containing the eyeball and brain.

The recommended therapies for both chronic indolent and fulminant sinusitis are aggressive surgical removal of the fungal material and intravenous anti-fungal therapy.