

SINUSITIS Q&A

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WHAT ARE THE SINUSES?

The [sinuses](#) are air filled structures within the facial skeleton, located adjacent to the [nasal cavity](#). There are four paired sinuses, eight in total: 2 maxillary, 2 ethmoid (a honeycomb like structure with multiple smaller air cells within), 2 sphenoid, and 2 frontal sinuses. The bony cavities are lined with soft tissue called [mucosa](#).

WHAT IS SINUSITIS?

[Sinusitis](#) is inflammation of the sinuses that results in symptoms such as thickened nasal drainage, [nasal congestion](#) and [facial pain or pressure](#). Because sinusitis is often preceded by, and almost always accompanied by, inflammation of the nasal mucosa (rhinitis), the term "rhinosinusitis" is used by otolaryngologists (ENT physicians) to replace the term "sinusitis".

Viruses, bacteria, and nasal allergies are common causes of inflammation. The inflamed, swollen mucosa of the nasal and sinus cavities leads to obstruction of the openings of the sinuses, or ostia. Unable to circulate air and eliminate the secretions that are normally produced, the sinuses then become an ideal environment for bacterial infection.

Sinusitis is categorized into types according to the duration of symptoms:

- Acute - symptoms are present for 4 weeks or less
- Subacute - symptoms are present for more than 4 weeks, but less than 12 weeks
- Chronic - symptoms are present for 12 weeks or greater
- Recurrent acute - 4 or more acute episodes occurring within 1 year, with resolution of symptoms between episodes
- Acute exacerbation of chronic rhinosinusitis - an episode of worsening symptoms in a patient with chronic rhinosinusitis

HOW COMMON IS SINUSITIS?

In the United States, more than 30 million people are diagnosed with sinusitis each year. Moreover,

chronic sinusitis affects approximately 15% of the U.S. population and is one of the most common chronic illnesses in America.

WHAT CAUSES SINUSITIS?

The central event in sinusitis is blockage of the sinus openings, or ostia as a result of inflammation.

Causes of sinonasal inflammation include:

- [Viruses](#)
- Bacteria
- [Fungus](#)
- Nasal [allergy](#)
- Reactive airway disease, such as [Asthma](#) and [Samter's triad](#)
- Congenital diseases, such as [Cystic Fibrosis](#)
- Inflammatory diseases, such as Sarcoidosis and Wegener's Granulomatosis
- Immunodeficiencies, such as AIDS
- Previous surgery, resulting in scar tissue formation
- Trauma, resulting in facial fractures

Unable to circulate air and eliminate the secretions that are produced, obstructed sinuses become an ideal environment for bacterial infection.

Many different types of bacteria can infect the sinuses. The bacteria most often identified in acute sinusitis are:

- *Streptococcus pneumoniae*
- *Hemophilus pneumoniae*
- *Moraxella catarrhalis*

In chronic rhinosinusitis, it is not uncommon to find multiple bacteria present in a single culture sample. In addition, these organisms may demonstrate drug resistance, responding to only select antibiotics. Bacteria commonly cultured in chronic rhinosinusitis include:

- *Staphylococcus aureus*
- Gram negative organisms, such as *Pseudomonas aeruginosa*

HOW IS SINUSITIS DIAGNOSED?

The diagnosis of sinusitis is made based on the subjective symptoms that a patient experiences combined with objective findings identified on examination or testing.

Your otolaryngologist will ask questions to determine exactly what symptoms you are experiencing and for how long.

Diagnostic symptoms include:

- Nasal drainage that is thick and discolored, or purulent
- Facial pain, pressure, or fullness, that often affects the cheeks, teeth, or area around the eyes
- Nasal congestion or obstruction
- Decreased sense of smell

Additional symptoms that you may experience include:

- Cough
- Post nasal drip
- Bad breath
- Headache
- Ear pain, pressure, or fullness
- Fever
- Fatigue

During your visit your otolaryngologist will perform a head and neck examination and may recommend a procedure called nasal endoscopy. Nasal endoscopy is an examination of the nasal cavity that is performed with a small, lighted telescope. It is an office-based procedure that is typically performed after applying a nasal decongestant and anesthetic spray. Nasal endoscopy provides a more detailed and extensive examination of the nasal cavity that may be necessary to identify the objective inflammatory findings needed to make a diagnosis of sinusitis. If chronic sinusitis is suspected, but not clearly demonstrated on nasal endoscopy, your otolaryngologist may recommend a CT scan of sinuses to confirm the diagnosis.

HOW IS SINUSITIS TREATED?

Much like the common cold, acute viral sinusitis resolves without treatment. Because viruses do not respond to antibiotic therapy, viral sinusitis is primarily managed with supportive care such as nasal saline rinses, rest and hydration. Medications, such as decongestants, mucolytics and pain relievers, may be offered by your physician to help decrease the severity of your symptoms.

The mainstay of treatment for acute bacterial sinusitis is an appropriate antibiotic, although some physicians and patients may prefer watchful waiting, as most acute bacterial infections will resolve without antibiotics. Your physician will base the choice of antibiotics on many factors, including:

- The most likely type of bacteria causing the infection
- Potential resistance of the bacteria to certain antibiotics
- Any medication allergies that you may have
- Other medications that you are taking
- Other medical conditions that you are being treated for
- Previous treatments that you have undergone

The duration of treatment is typically between 10-14 days. Pain relief should also be provided with either over the counter or prescription medications. As with acute viral sinusitis, additional medications, such as steroids, decongestants and mucolytics may be offered by your physician to help decrease the severity and duration of your symptoms. Nasal saline rinses are also often recommended.

Because of the vast number of underlying, often multiple, causes, the treatment of chronic sinusitis becomes more complicated. In general, however, chronic sinusitis requires more prolonged durations of medical therapy. Antibiotics, when required, are often based on the results of sinus cultures and are prescribed for 3-4 weeks time. A culture is a test that uses a sample of a patient's mucous to determine which bacteria are present.

WHO TREATS SINUSITIS?

Pediatricians, family practitioners, internists, allergists and pulmonologists are all involved in the treatment of patients with sinusitis. However, patients suffering from symptoms of recurrent acute or chronic sinusitis are often referred to an otolaryngologist. Otolaryngologists, or ENT physicians, are specialists providing both medical and surgical treatment of disorders of the ears, nose and throat.

Some otolaryngologists choose to further subspecialize in rhinology; the management of diseases of the nose and sinuses. Patients with severe or complicated disease and those who have undergone prior surgery are often referred to a rhinologist for evaluation and treatment.

WHEN IS SURGERY NEEDED?

Sinus surgery is reserved for patients with chronic sinusitis who have persistent symptoms despite medical therapy.

It must be remembered that sinusitis is an inflammatory process that needs to be treated aggressively with medication before considering surgery. Even after successful sinus surgery, most patients with chronic sinusitis will continue to require medication to control the underlying cause(s) of inflammation and prevent the return of symptoms.

For patients who fail to improve with appropriate medical treatment, sinus surgery is an excellent option. Today, sinus surgery is typically performed through the nose, endoscopically, with the use of a nasal endoscope to visualize the nasal cavity and sinuses, thus avoiding the need for incisions through the skin. The primary goal of endoscopic sinus surgery is to restore normal function to the blocked sinuses. During the procedure, the surgeon locates and enlarges the small natural drainage passageways of the sinuses.

Very rarely patients with acute bacterial sinusitis will develop a complication when the infection spreads to adjacent structures such as the eye or the brain. Such complications are considered medical emergencies, requiring immediate treatment. Typically, surgery is also required in these patients in order to drain the collection of infection and enlarge the ostia of the responsible sinuses.

REFERENCE

Clinical practice guideline: Adult sinusitis. Richard M. Rosenfeld, et al. Otolaryngology -- Head and Neck Surgery 2007 137: S1



Revised 02/17/2015

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