SINUSITIS

What is sinusitis?

You're coughing, your nose is stuffy, and you feel tired and achy. You think that you might be getting a cold. Later, when the medicines you've been taking to relieve symptoms of the common cold are not working and you've got a terrible headache, you finally drag yourself to the doctor. After listening to your history of symptoms, examining your face and forehead, and perhaps doing a sinus X-ray, the doctor says you have sinusitis. Health experts estimate 37 million Americans are affected by sinusitis every year.

Sinusitis means your sinuses are infected or inflamed. But this gives little indication of the misery and pain this condition can cause. Health experts usually divide sinusitis cases into:

- Acute cases, which last for 4 weeks or less
- Subacute cases, which last 4 to 12 weeks
- Chronic cases, which last more than 12 weeks and can continue for months or even years
- Recurrent cases, which involve several acute attacks within a year

What Are Sinuses?

When people say, "I'm having a sinus attack," they usually are referring to symptoms of congestion and achiness in one or more of four pairs of cavities, or sinuses, known as paranasal sinuses. These cavities, located within the skull or bones of the head surrounding the nose, include

- Frontal sinuses over the eyes in the brow area
- Maxillary sinuses inside each cheekbone
- Ethmoid sinuses just behind the bridge of the nose and between the eyes
- Sphenoid sinuses behind the ethmoids in the upper region of the nose and behind the eyes

Each sinus has an opening into the nose for the free exchange of air and mucus, and each is joined with the nasal passages by a continuous mucous membrane lining. Therefore, anything that causes a swelling in the nose—an infection, an allergic reaction, or another type of immune reaction—also can affect your sinuses.

Air trapped within a blocked sinus, along with pus or other secretions (liquid material) may cause pressure on the sinus wall. The result is the sometimes intense pain of a sinus attack. Similarly, when air is prevented from entering a paranasal sinus by a swollen membrane at the opening, a vacuum can be created that also causes pain.

Cause

Acute Sinusitis

Most cases of acute sinusitis start with a common cold, which is caused by a virus. Colds can inflame your sinuses and cause symptoms of sinusitis. Both the cold and the sinus inflammation usually go away without treatment within 2 weeks. If the inflammation produced by the cold leads to a bacterial infection, however, then this infection is what health experts call acute sinusitis.

The inflammation caused by the cold results in swelling of the mucous membranes (linings) of your sinuses, and this can lead to air and mucus becoming trapped behind the narrowed openings of the sinuses. When mucus stays inside your sinuses and is unable to drain into your nose, it can become the source of nutrients (material that gives nourishment) for bacteria.

Most healthy people harbor bacteria, such as Streptococcus pneumoniae and Haemophilus influenzae, in the nose and throat, and the bacteria cause no problems. But when you have a cold, you tend to sniff or to blow your nose, and these actions cause pressure changes that can send bacteria inside the sinuses. If your sinuses then stop draining properly, bacteria that may have been living harmlessly in your nose or throat can begin to multiply in your sinuses, causing acute sinusitis.

People who suffer from allergies that affect the nose (like pollen allergy, also called hay fever), as well as people who may have chronic nasal symptoms not caused by allergy, are also prone to develop episodes of acute sinusitis. The chronic nasal problems cause the nasal membranes to swell, and the sinus passages become blocked in a manner similar to that described above for the common cold. The normally harmless bacteria in the nose and throat again lead to acute sinusitis.

Rarely, fungal infections can cause acute sinusitis. Although fungi are abundant in the environment, they usually are harmless to healthy people because the human body has a natural resistance to fungus. However, in people whose immune system is not functioning properly, fungus, such as Aspergillus, can cause acute sinusitis. (Aspergillus is commonly found growing on dead leaves, stored grain, compost piles, or in other decaying vegetation.)

In general, people who have reduced immune function (such as those with primary immune deficiency disease or HIV infection) or abnormalities in mucus secretion or mucus movement (such as those with cystic fibrosis) are more likely to suffer from sinusitis.

Chronic Sinusitis

In chronic sinusitis, the membranes of both the paranasal sinuses and the nose are thickened because they are constantly inflamed. Most experts now use the term "chronic rhinosinusitis" to describe this condition, and they also recommend that the condition be divided into rhinosinusitis with or without nasal polyps. Nasal polyps are grape-like growths of the sinus membranes that protrude into the sinuses or into the nasal passages. Polyps make it even more difficult for the sinuses to drain and for air to pass through the nose.

The causes of chronic sinusitis are largely unknown. The condition often occurs in people with asthma, the majority of whom have allergies. It is possible that constant exposure to inhaled allergens that are present year-round, such as house dust mites, pets, mold (a kind of fungus), and cockroaches cause chronic inflammation of the nose and the sinuses.

An allergic reaction to certain fungi may be responsible for at least some cases of chronic sinusitis; this condition is called "allergic fungal sinusitis." At least half of all people with chronic rhinosinusitis do not have allergies, however.

Most health experts believe that chronic rhinosinusitis is not an infectious disease (like acute sinusitis). If you suffer frequent episodes of acute sinusitis, however, you may be prone to develop chronic rhinosinusitis. Other causes of chronic rhinosinusitis may be an immune deficiency disorder (for example, primary immune deficiency disease or HIV infection) or an abnormality in the quality of mucus produced by the respiratory system (cystic fibrosis).

Another group of people who may develop chronic sinusitis are those with significant anatomic (structure) variations inside the nose, such as a deviated septum, that lead to blockage of mucus.

What are the symptoms of sinusitis?

One of the most common symptoms of sinusitis is pain, and the location depends on which sinus is affected.

- If you have a pain in your forehead over the frontal sinuses when you are touched, your frontal sinuses may be inflamed.
- If your upper jaw and teeth ache, and your cheeks become tender to the touch, you may have an infection in the maxillary sinuses.
- If you have swelling of the eyelids and tissues around your eyes, and pain between your eyes, you may have inflammation of the ethmoid sinuses that are near the tear ducts in the corner of your eyes. Ethmoid inflammation also can cause a stuffy nose, a loss of smell, and tenderness when you touch the sides of your nose.
- If you have earaches, neck pain, and deep achiness at the top of your head, you may have infection in the sphenoid sinuses, although these sinuses are less frequently affected.

Most people with sinusitis have pain or tenderness in several locations, and their symptoms usually do not clearly indicate which sinuses are inflamed.

In addition to the pain, people with sinusitis frequently have thick nasal secretions that are yellow, green, or blood-tinged. Sometimes these secretions, referred to as post-nasal drip, drain in the back of the throat and are difficult to get rid of. Also, acute and chronic sinusitis are strongly associated with nasal symptoms such as a stuffy nose, as well as with a general feeling of fullness over the entire face.

Less common symptoms of sinusitis can include:

- Tiredness
- Decreased sense of smell
- Cough that may be more severe at night
- Sore throat
- Bad breath
- Fever

On rare occasions, acute sinusitis can result in brain infection and other serious complications.

How is sinusitis diagnosed?

Because your nose can get stuffy when you have a condition like the common cold, you may confuse simple nasal congestion with sinusitis. A cold, however, usually lasts about 7 to 14 days and goes away without treatment. Acute sinusitis often lasts longer and typically causes more symptoms than a cold.

Your healthcare provider can usually diagnose acute sinusitis by noting your symptoms and doing a physical examination, which includes examining your nasal tissues. If your symptoms are vague or persist, your healthcare provider may order a computed tomography (CT) scan, a form of X-ray, to confirm that you have sinusitis.

Laboratory tests your healthcare provider may use to diagnose chronic sinusitis include

- Blood tests to rule out conditions associated with sinusitis, like an immune deficiency disorder
- A sweat test or a blood test to rule out cystic fibrosis
- Tests on the material that is inside your sinuses to detect bacterial or fungal infection

- Biopsy of the membranes (linings) of the nose or sinuses to determine the health of the cells lining these cavities

What are the treatments for sinusitis?
After diagnosing sinusitis and identifying a possible cause, your healthcare provider can suggest various treatments.

Acute Sinusitis
If you have acute sinusitis, your healthcare provider may recommend

- Antibiotics to control a bacterial infection, if present
- Pain relievers to reduce any pain
- Decongestants to reduce congestion

Even if you have acute sinusitis, your provider may choose not to use an antibiotic because many cases of acute sinusitis will end on their own. But if you do not feel better after a few days you should contact your provider again.

You should use over-the-counter or prescription decongestant nose drops and sprays only for few days. If you use these medicines for longer periods, they can lead to even more congestion and swelling of your nasal passages.

If you have an allergic disease along with sinusitis, you may also need medicine to control allergies. This may include a nasal steroid spray that reduces the swelling around the sinus passages and allows the sinuses to drain. If you already have asthma and then get sinusitis, your asthma may worsen. You should stay in close touch with your healthcare provider to modify your asthma treatment if needed.

Chronic Sinusitis
Healthcare providers often find it difficult to treat chronic sinusitis successfully. The two main forms of treatment that are used, nasal steroid sprays and long courses of oral antibiotics, alone or in combination, have not been rigorously tested in chronic sinusitis. Scientists need to do more research to determine what the best treatment is.

Many healthcare providers also recommend using saline (saltwater) washes or sprays in the nose to help remove thick secretions and allow the sinuses to drain.

If you have severe chronic sinusitis, your healthcare provider may prescribe oral steroids, such as prednisone. Because oral steroids are powerful medicines and can have significant side effects, you should take them only when other medicines have not worked.

Surgery
When medicine fails, surgery may be the only alternative for treating chronic sinusitis. The goal of surgery is to improve sinus drainage and reduce blockage of the nasal passages. During surgery, which is usually done through the nose, the surgeon:

- Enlarges the natural opening of the sinuses
- Removes any polyps
- Corrects significant anatomic deformities that contribute to the obstruction

Most people have fewer symptoms and better quality of life after surgery. In a substantial number of people, however, problems can recur after surgery, sometimes even after a short period of time.

In children, surgeons can sometimes eliminate sinus problems by removing adenoids (tissue in the back of the throat) that obstruct the nasal-sinus passages.

Can sinusitis be prevented?
There are no methods that have been scientifically tested and proven to prevent acute or chronic sinusitis. However, your healthcare provider may recommend a variety of measures that may provide you with some benefit.

- Keep your nose as moist as possible with frequent use of saline (salt) sprays.
- Avoid very dry indoor environments and use a humidifier, if necessary. But be aware that if you have allergies to molds, house dust

mites, or cockroaches, a humid environment may also create problems.

- Avoid exposure to irritants, such as cigarette and cigar smoke or strong odors from chemicals.
- Avoid exposure to anything you're allergic to. If you have not been tested for allergies and you are getting frequent sinus infections, ask your healthcare provider to give you an allergy evaluation or to refer you to an allergy specialist.
- Avoid long periods of swimming in pools treated with chlorine, which irritates the lining of the nose and sinuses.
- Avoid water diving, which forces water into the sinuses from the nasal passages.

You may find that air travel poses a problem if you are suffering from acute or chronic sinusitis. As air pressure in a plane is reduced, pressure can build up in your head, blocking your sinuses or the eustachian tubes in your ears. As a result, you might feel discomfort in your sinuses or middle ear during the plane's ascent or descent. Some health experts recommend using decongestant nose drops or sprays before a flight to avoid this problem.

Additional information

- American Academy of Allergy, Asthma & Immunology - http://www.aaaai.org/
- American Academy of Otolaryngology—Head and Neck Surgery, Inc. - http://www.entnet.org/

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