

Sinus disease :

www.coloradosinus.com which is currently under construction will soon launch (midmarch 2008). Colorado Sinus Institute will be our specialized website devoted solely to sinus and sinus related problems.

Allergic Rhinitis, Sinusitis, and Rhinosinusitis

Please review our information on nasal obstruction and rhinitis. Realize that the nose and the sinuses are inseparable in their function and that most diseases that affect the nose will ultimately cause problems in the sinuses and vice-versa.

Sinusitis Background

Recent studies by otolaryngologist–head and neck surgeons have better defined the association between rhinitis and sinusitis. They have concluded that sinusitis is often preceded by rhinitis and rarely occurs without concurrent rhinitis. The symptoms, nasal obstruction/discharge and loss of smell, occur in both disorders. Most importantly, computed tomography (CT scan) findings have established that the mucosal linings of the nose and sinuses are simultaneously involved in the common cold (previously, thought to affect only the nasal passages). Otolaryngologists, acknowledging the inter-relationship between the nasal and sinus passages, now refer to sinusitis as rhinosinusitis.

The catalyst relating the two disorders is thought to involve nasal sinus overflow obstruction, followed by bacterial colonization and infection leading to acute, recurrent, or chronic sinusitis. Likewise, chronic inflammation due to allergies can lead to obstruction and subsequent sinusitis.

Other medical research has supported the close relationship between allergic rhinitis and sinusitis. In a retrospective study on sinus abnormalities in 1,120 patients (from two to 87 years of age), thickening of the sinus mucosa was more commonly found in sinusitis patients during July, August, September, and December, months in which pollen, mold, and viral epidemics are prominent. A review of patients (four to 83 years of age) who had surgery to treat their chronic sinus conditions revealed that those with seasonal allergy and nasal polyps are more likely to experience a recurrence of their sinusitis.

How your respiratory system works and doesn't work when it's sick

The body's nasal, sinus, and lung membranes have similar responses to viruses, allergic insults, and common bacterial infections. Membranes become swollen and congested. This congestion causes pain and pressure; mucus production increases during inflammation, resulting in extra nasal and chest secretions. These secretions may thicken over time, may slow in their drainage, and may predispose to future bacterial infection of the respiratory system. This applies to the nose, throat, and lungs. Congestion of the nasal membranes may even block the Eustachian Tube leading to the ear, resulting in a feeling of blockage in the ear or fluid behind the eardrum. Additionally,

nasal airway congestion causes the individual to breathe through the mouth. Each year, more than 50 million Americans seek treatment for sinusitis. They typically complain of nasal congestion, thick yellow-green nasal discharge, facial pain, and pressure. Many do not understand the nature of their illness or what produces their symptoms.

Sinuses are air-filled cavities in the skull. Portions of the sinus cavities occupy part of the top of the nose in the middle of your face between your eyes, but other sinuses connect to your nose through small passageways into your forehead, cheek and skull bone in the back of your nose. The connecting passageways are dual purpose in that they allow mucus that is normally formed in the sinuses to exit and also allow air pressure equalization to occur between the nose, the environment outside your nose, and the sinuses. Blockages in the openings from swelling due to colds, flu, or allergies may lead to acute sinus infection which may include the symptoms of increased thick drainage, headache, facial pain, vision changes, and many other symptoms. Sinus complaints at this time are the most common problem for which adult patients seek medical care in the United States!

How do I know if I have a sinus infection?

Many patients are unsure if they have a nose problem or a sinus problem. In fact, the nose and the sinuses are intimately related and infection or problem with either may easily affect the other. Many other patients are unaware that they have sinus problems at all and have gone on for years believing that they have migraine headaches, uneven vision, or sore teeth. It is not wise to make any assumptions about chronic nose problems, headaches, facial pain, or any related symptoms without seeking the evaluation and advice of your physician.

Acute bacterial sinusitis is an infection of the sinus cavities caused by bacteria. It usually is preceded by a cold, allergy attack, or irritation by environmental pollutants. Unlike a cold, or allergy, bacterial sinusitis requires a physician's diagnosis and treatment with an antibiotic to cure the infection and prevent future complications.

Normally, mucus collecting in the sinuses drains into the nasal passages. When you have a cold or allergy attack, your sinuses become inflamed and are unable to drain. This can lead to congestion and infection. Diagnosis of acute sinusitis usually is based on a physical examination and a discussion of your symptoms. Your doctor also may use CT imaging of your sinuses or obtain a sample of your nasal discharge to test for bacteria. A viral "cold" that persists for 10 days or more may have become an acute bacterial sinus infection. With this infection you may notice increased post-nasal drip. If you suspect that you have a sinus infection, you should see your physician for evaluation.

Chronic sinusitis

When you have frequent sinusitis, or the infection lasts three months or more, it could be chronic sinusitis. Symptoms of chronic sinusitis may be less severe than those of acute; however, untreated chronic sinusitis can cause damage to the sinuses and cheekbones that sometimes requires surgery to repair.

Chronic Sinusitis occurs when sinus blockages persist and the lining of the sinuses swell further than they may have been during an acute infection. Generally, patients with chronic sinus problems have been experiencing discomfort for at least 3 months without significant relief with antibiotics or other treatments. Polyps (growths in the nose) may develop with chronic sinusitis. Patients with polyps tend to have irritating, persistent post-nasal drip. Evaluation by an otolaryngologist may include an exam of the interior of the nose with a fiberoptic scope and CT scan. If medication does not relieve the problem, surgery may be recommended.

Why do I have chronic sinusitis and what can I do about it?

The astute ENT doctor will be considering many factors which predispose patients to sinus disease, particularly chronic infections. We know from intensive study in the last decade that the lungs and the sinuses are very similar and in fact are inextricably linked. Asthma and chronic sinus disease will aggravate each other if either is left untreated. Environmental allergies will make management of chronic sinus disease hopeless if left untreated. Medication allergies can also cause swelling in the nose. This is sometimes seen with subtle allergies to aspirin and other nonsteroidal anti-inflammatory medications such as ibuprofen or naprosyn sodium. Immune dysfunction, even subtle, which otherwise leaves a patient healthy and with a normal lifespan, can wreak havoc on sinus function. Connective tissue diseases, such as those that cause arthritis or autoimmune reaction, can first manifest as sinus disease.

All of these and more are addressed during a thorough sinus disease workup. Imaging in the form of CT or MRI will help to identify anatomy changes that predispose some patients to sinus infection. Appropriate medical treatment often involves several different types of topical nasal sprays, systemic oral therapies, and frequent cultures of nasal secretions to identify uncommon pathogens. Molds and other unsuspected bacteria which otherwise might not be thought to grow in the nose are often found in chronically ill sinus patients

Bacterial sinusitis:

Therapy for bacterial sinusitis should include an appropriate antibiotic, which cannot be based upon guesswork alone. If you have three or more symptoms of sinusitis (see chart), be sure to see your doctor for diagnosis. Antibiotics offered without the use of a culture to identify the offending organism may be an unnecessary risk to your wellbeing and will likely prolong if not worsen your suffering. In addition to an antibiotic, proper

nasal hygiene with the use of saline rinses and appropriate topical sprays should be recommended and maintained, often indefinitely.

Antibiotic Resistance

Antibiotic resistance means that some infection-causing bacteria are immune to the effects of certain antibiotics prescribed by your doctor. Antibiotic resistance is making even common infections, such as sinusitis, challenging to treat. You can help prevent antibiotic resistance. Maintain your own motivation for getting a culture, following through on the results, and taking the full course of a carefully selected antibiotic. It is important that you take all of the medication just as your doctor instructs, even if your symptoms are gone before the medicine runs out, in order to prevent further resistance of the bacteria growing in your nose and sinuses which may not any longer be causing you symptoms but are waiting for an opportune time to cause you trouble in the future.

Surgery for sinus problems

Surgery is sometimes necessary to remove physical obstructions that may contribute to sinusitis. Surgery should be considered only if medical treatment fails or if there is a nasal obstruction that cannot be corrected with medications. The type of surgery is chosen to best suit the patient and the disease. Almost always, the surgery is performed through the nose, without external incisions, bruising, swelling, or other temporary appearance alterations.

Functional endoscopic sinus surgery (FESS) is recommended for most types of sinus disease. With the endoscope, the surgeon can look directly into the nose, while at the same time, removing diseased tissue and polyps and clearing the narrow channels between the sinuses. This is performed under general anesthesia with special microscopic instruments to preserve the important normal structures inside the nose.

Before surgery, be sure that you have realistic expectations for the results, recovery, and postoperative care. Good results require not only good surgical techniques, but a cooperative effort between the patient and physician throughout the healing process. It is equally important for patients to follow pre- and postoperative instructions. Sinus surgery is unique in this regard; patient and surgeon relations must continue for quite some time after the procedure to ensure best long-term results

Preventing Sinusitis

As always, an ounce of prevention is worth a pound of cure. To avoid developing sinusitis during a cold or allergy attack, keep your sinuses clear by:

- * Maintaining excellent nasal hygiene. Use a twice-daily, large-volume nasal rinse to purge your nose of external irritants
- * Considering the long-term use of topical anti-inflammatory and antihistamine sprays to keep nasal mucus membranes in optimum condition

- * Avoiding systemic medications that will cause nasal dryness or swelling. These include the regular use of decongestants, antihistamines, certain sleeping aids, and over-the-counter cold and sinus remedies
- * drinking plenty of fluids to keep nasal discharge thin
- * manage your environmental allergies (see our allergy section)

Children & Sinusitis

Your child's sinuses are not fully developed until beyond age 20. However, children can still suffer from sinus infection. Although small, the maxillary (behind the cheek) and ethmoid (between the eyes) sinuses are present at birth. Sinusitis is difficult to diagnose in children because respiratory infections are more frequent, and symptoms can be subtle. Unlike a cold or allergy, bacterial sinusitis requires a physician's diagnosis and treatment with an antibiotic to prevent future complications.

The following symptoms may indicate a sinus infection in your child:

- * a "cold" lasting more than 10 to 14 days, sometimes with low-grade fever
- * thick yellow-green nasal drainage
- * post-nasal drip, sometimes leading to or exhibited as sore throat, cough, bad breath, nausea and/or vomiting
- * headache, usually not before age 6
- * irritability or fatigue
- * swelling around the eyes

If despite appropriate medical therapy these symptoms persist, care should be taken to seek an underlying cause. The role of allergy and frequent upper respiratory infections should be considered.

Symptoms Of Sinusitis

Pain in the sinus area does not automatically mean that you have a sinus disorder. On the other hand, sinus and nasal passages can become inflamed leading to a headache.

Headache is one of the key symptoms of patients diagnosed with acute or chronic sinusitis. In addition to a headache, sinusitis patients often complain of:

- * Pain and pressure around the eyes, across the cheeks and the forehead
- * Achy feeling in the upper teeth
- * Fever and chills
- * Facial swelling
- * Nasal stuffiness
- * Yellow or green discharge

However, it is important to note that there are some cases of headaches related to chronic sinusitis without other upper respiratory symptoms. This suggests that an examination for sinusitis be considered when treatment for a migraine or other headache disorder is unsuccessful.

Treatment For A Sinus Headache

There are several at-home steps that help prevent sinus headache or alleviate its pain. They include:

- * **Breathe moist air:** Relief for a sinus headache can be achieved by humidifying the dry air environment. This can be done by using a steam vaporizer or cool-mist humidifier, steam from a basin of hot water, or steam from a hot shower.
- * **Alternate hot and cold compresses:** Place a hot compress across your sinuses for three minutes, and then a cold compress for 30 seconds. Repeat this procedure three times per treatment, two to six times a day.
- * **Nasal irrigation:** Some believe that when nasal irrigation or rinse is performed, mucus, allergy creating particles and irritants such as pollens, dust particles, pollutants and bacteria are washed away, reducing the inflammation of the mucous membrane. Normal mucosa will fight infections and allergies better and will reduce the symptoms. Nasal irrigation helps shrink the sinus membranes and thus increases drainage. There are several over-the-counter nasal rinse products available. Consult your ear, nose, and throat specialist for directions on making a home nasal rinse or irrigation solution.
- * **Over-the-counter medications:** Some over-the-counter (OTC) drugs are highly effective in reducing sinus headache pain. The primary ingredient in most OTC pain relievers is aspirin, acetaminophen, ibuprofen, naproxen, or a combination of them. The best way to choose a pain reliever is by determining which of these ingredients works best for you.
- * **Alternative medicine:** Chinese herbalists use Magnolia Flower as a remedy for clogged sinus and nasal passages. In conjunction with other herbs, such as angelica, mint, and chrysanthemum, it is often recommended for upper respiratory tract infections and sinus headaches, although its effectiveness for these problems has not been scientifically confirmed. Acupuncture and biofeedback have also been found helpful by many patients. If none of these preventative measures or treatments is effective, a visit to an ear, nose, and throat specialist may be warranted. During the examination, a CT scan of the sinuses may be ordered to determine the extent of blockage caused by chronic sinusitis. If no chronic sinusitis were found, treatment might then include allergy testing and desensitization (allergy shots). Acute sinusitis is treated with antibiotics and decongestants. If antibiotics fail to relieve the chronic sinusitis and accompanying headaches, endoscopic or image-guided surgery may be the recommended treatment.

Nasal Polyps

In some cases, polyps grow into the nasal passage. They usually originate at the sinus openings. Polyps are like teardrop-shaped collections of inflammatory cells, fluid, and

tissue. They are covered by a mucous membrane. They can grow in response to infection, allergy, locations of abnormal contact, or for unknown reasons. When polyps are widespread, it is usually from some underlying mucosal abnormality.

Sinus Surgery

The ear, nose, and throat specialist will prescribe many medications (antibiotics, decongestants, nasal steroid sprays, antihistamines) and procedures (flushing) for treating acute sinusitis. There are occasions when physician and patient find that the infections are recurrent and/or non-responsive to the medication. When this occurs, surgery to enlarge the openings that drain the sinuses is an option.

A recommendation for sinus surgery in the early 20th century would easily alarm the patient. In that era, the surgeon would have to perform an invasive procedure, reaching the sinuses by entering through the cheek area, often resulting in scarring and possible disfigurement. Today, these concerns have been eradicated with the latest advances in medicine. A trained surgeon can now treat sinusitis with minimal discomfort, a brief convalescence, and few complications.

A clinical history of the patient will be created before any surgery is performed. A careful diagnostic workup is necessary to identify the underlying cause of acute or chronic sinusitis, which is often found in the anterior ethmoid area, where the maxillary and frontal sinuses connect with the nose. This may necessitate a sinus computed tomography (CT) scan (without contrast), nasal physiology (rhinomanometry and nasal cytology), smell testing, and selected blood tests to determine an operative strategy. Note: Sinus X-rays have limited utility in the diagnosis of acute sinusitis and are of no value in the evaluation of chronic sinusitis.

Sinus Surgical Options Include:

Functional endoscopic sinus surgery (FESS): Developed in the 1950s, the nasal endoscope has revolutionized sinusitis surgery. In the past, the surgical strategy was to remove all sinus mucosa from the major sinuses. The use of an endoscope is linked to the theory that the best way to obtain normal healthy sinuses is to open the natural pathways to the sinuses. Once an improved drainage system is achieved, the diseased sinus mucosa has an opportunity to return to normal.

FESS involves the insertion of the endoscope, a very thin fiber-optic tube, into the nose for a direct visual examination of the openings into the sinuses. With state of the art micro-telescopes and instruments, abnormal and obstructive tissues are then removed. In the majority of cases, the surgical procedure is performed entirely through the nostrils, leaving no external scars. There is little swelling and only mild discomfort.

The advantage of the procedure is that the surgery is less extensive, there is often less removal of normal tissues, and can frequently be performed on an outpatient basis. After

the operation, the patient will sometimes have nasal packing. Ten days after the procedure, nasal irrigation may be recommended to prevent crusting.

Image guided surgery: The sinuses are physically close to the brain, the eye, and major arteries, always areas of concern when a fiber optic tube is inserted into the sinus region. The growing use of a new technology, image guided endoscopic surgery, is alleviating that concern. This type of surgery may be recommended for severe forms of chronic sinusitis, in cases when previous sinus surgery has altered anatomical landmarks, or where a patient's sinus anatomy is very unusual, making typical surgery difficult.

Image guidance is a three-dimensional mapping system that combines computed tomography (CT) scans and real-time information about the exact position of surgical instruments using infrared or electromagnetic signals. In this way, surgeons can navigate their surgical instruments through complex sinus passages and provide surgical relief more precisely. Image guidance uses some of the same stealth principles used by the United States armed forces to guide bombs to their target and used by Hollywood filmmakers to create animation sequences.

Please review our accompanying website at www.colosinus.com for much more information about sinus disease. A thorough review of available medical and surgical treatments can be found there.