

Not Another Sinus Infection!

By Jennifer Richlin, RN, MSN, PNP

There may be as many as 500,000 people in the United States with diagnosed and undiagnosed primary immune deficiency diseases (PIDDs)¹. For many, the diagnosis of PIDD occurs after a medical work-up prompted by problems with chronic and unresolved sinusitis. Even with regular immune globulin therapy, many patients are just dreading the next sinus infection.

Sinusitis Basics

Sinusitis involves inflammation and infection of the sinus cavities, and it usually follows a cold or an allergy exacerbation. Some infections occur because mucus can't drain through the nasal passages. Chronic sinusitis is defined as sinusitis lasting for at least three weeks.

Sinus cavities are air spaces located in the skull surrounding the nose. There are four pairs of sinus cavities known as the paranasal sinuses, and one or more of them are the usual culprit when a person complains of sinus pain:

- Frontal (above the eyes)
- Maxillary (inside the cheekbones)
- Ethmoids (behind the nose, between the eyes)
- Sphenoid (in the upper part of the nose, behind the eyes)

Sinuses perform their job by providing an opening into the nose, allowing air and mucus to pass. The sinuses are connected by a mucus membrane lining the pathway. Understanding this connection is important, as it explains why any event creating swelling or inflammation in the nose can affect the sinuses. The inflammation can be caused by allergens, infection or environmental irritants.

If the sinuses get blocked with drainage, it may create pressure on the walls of the sinus cavities, in turn creating "sinus attacks." If there is a blockage caused by inflammation, in turn preventing air from entering the paranasal sinus cavities, a vacuum may result, creating sinus pain.

You Already Know the Symptoms

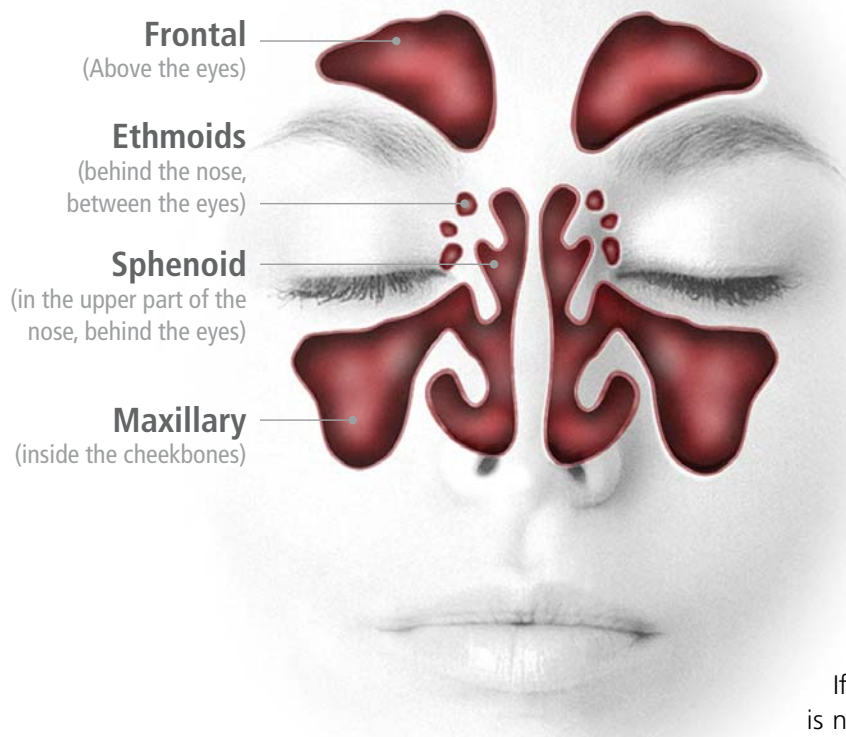
Any individual who suffers from PIDD, or the parent of a child with PIDD, is likely quite aware of sinusitis symptoms.

Common symptoms include facial pain, sinus tenderness, headaches, nasal drainage that is green or yellow, itchy cough, post-nasal drip, bad breath, upper jaw pain, sore throat, sensitivity to light, fatigue and swollen face and eyelids. Adults who are afflicted with sinus infection in the maxillary sinuses specifically may complain of pain in the upper jaw and sore teeth. Children who suffer from sinusitis may be less likely to complain of headaches than adults. The children will, however, be more likely to suffer from foul breath, irritability, coughing, fever and facial and eyelid swelling.

Many patients who suffer with chronic sinusitis may have an ongoing inflammatory condition due to allergies. Sinusitis may result from mucus blockage caused by allergic rhinitis. A good place to start resolving allergic symptoms is through avoidance of allergens (substances that cause allergic symptoms). Minimize exposure to pollens, mold, pet dander, dust mites and even certain foods to reduce allergies. Of course, it is difficult to avoid all allergic triggers so your healthcare provider may suggest different types of allergy medications to relieve the symptoms. Some types of medications your healthcare team may recommend include corticosteroids, antihistamines, decongestants, leukotriene modifiers and mast cell stabilizers. Never begin any new course of therapy without consulting your healthcare team.

Many patients find that sinus irrigation relieves the inflammation of sinus passages. Sinus irrigation involves the infusion of normal saline solution into the nasal passages. Patients can do it daily to reduce medication use and improve breathing. Discuss nasal irrigation with your healthcare provider prior to attempting it. ➤

¹ Cooper, Megan PhD, Pommering, Thomas, DO, Koranyi, Katalin, MD. "Primary Immunodeficiencies." American Family Physician. Nov 2003.



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The results of X-rays are not considered the best diagnostic tool for chronic sinusitis, so a CT scan will usually be requested. After review of all of this information, the healthcare provider may begin treatment with antibiotics or other medications, or may request that the patient consult with an ear, nose and throat (ENT) specialist. A traditional nasal swab is not considered to be very helpful in determining the cause of a chronic sinusitis. The only way to get a more detailed specimen from the sinus cavity is through an invasive culture collected while under anesthesia.

What If the Meds Don't Work?

Sinus surgery sometimes helps reduce the frequency of infections and symptoms for people with primary immune deficiencies. If the healthcare provider believes sinus surgery is necessary, the patient will be referred to an ENT specialist. The specialist will determine if sinus surgery is the best option after reviewing the imaging studies, such as a CT scan, the patient's history and physical exam, and other possible test results, such as blood work.

Sinus surgery is conducted as an endoscopic procedure, meaning through the nose without cutting the patient's skin to reach the sinus cavities. If it is necessary, polyps can be removed during the procedure and the septum can be straightened. The procedure lasts from one to three hours, and is conducted under general anesthesia. Sinus surgery is usually performed as an outpatient procedure, unless there are other health concerns.

There is usually no scarring, as the scope is passed through the nose. The ENT surgeon opens the natural nasal passages, allowing them to drain and ventilate. During this time, it is possible to obtain a true culture of the organism causing the sinusitis. The surgeon may use the visual scope to remove polyps or diseased tissue in the area. If the passages appear to be open and able to ventilate well, the patient may have the area "washed," which means irrigated in order to cleanse the cavity of the organisms causing the inflammation and infection.

A follow-up visit to the ENT specialist usually is scheduled one to two weeks after the sinus surgery,

What's Bugging Me?

For most episodes of sinusitis, the origin is a bacterial infection that may have been preceded by a cold or a viral infection. The most common organisms causing the infections are streptococcus pneumonia and haemophilus influenza. These organisms are normally present in the respiratory system, and usually don't create a medical complication unless a person's immune system is compromised.

People with an immune deficiency are also at increased risk for sinusitis from other organisms, such as a fungus or other bacteria. The most common invasive fungal sinusitis is caused by aspergillus, and, if left untreated, can lead to destruction of the sinus cavities and bone and encroachment of the infection into the eye sockets and brain. For these reasons, it is imperative to receive treatment for sinusitis by a trained practitioner, well informed about the care of patients with PIDD.

What Type of Sinusitis Do I Have?

The healthcare provider will determine if the diagnosis of chronic sinusitis applies, through in-depth medical history and a physical. This will involve questions about specific symptoms and their duration, along with an MRI or CT scan and comparison of X-rays.

depending on the individual patient outcome. After the procedure, there may be mild facial swelling, discomfort in the nose, difficulty breathing through the nose, and some difficulty swallowing. These symptoms usually resolve in two or three weeks. If symptoms do not resolve or get worse, the ENT specialist and the primary healthcare provider should be contacted.

Follow-up care after sinus surgery involves dedicated nasal sinus irrigations to keep the tissues clean and moist. This step often determines the length of positive results from the procedure, so it needs to be taken seriously. The irrigations may be required from seven days to many weeks, depending on the individual.

Although sinus surgery may be effective in treating sinusitis, therapy and treatment for the underlying cause must be continued after surgery.

Kids and Sinus Surgery

A child's frontal sinus does not fully develop until somewhere between ages 8 and 12. During a sinus surgery, the area known as the anterior ethmoid will be opened and ventilated, which in turn opens the area called the frontal sinus recess. The ENT specialist will avoid the frontal sinus recess in order to prevent damage or obstruction of this area.

A child should be prepared for some nasal pain following a sinus surgery. Inform the child that it may be hard to breathe through the nose. There may be a small gauze dressing under the nose to catch the brownish drainage after surgery. Nasal irrigations can be challenging for children who do not want anything placed into their noses. Consult the child's healthcare provider for alternate ways to keep the nasal passage moist, such as sodium chloride sprays or vaporizers. Try using a reward system for successful irrigations or nasal sprays, such as sticker charts, prizes or special treats.

Let the child know that after a sinus surgery, he or she may need to wait a few days to resume all normal play activities and school attendance. Consult the child's ENT specialist for more details on follow-up care.

Prevention

People with PIDD have no real way to prevent sinusitis, although there are ways to maintain a healthier lifestyle and keep a vigilant watch for sinus complications. If the patient is on immune globulin therapy, it is important to follow through on all treatments and doctor appointments. It might help to use an air filter at home to reduce allergens and air pollutants, which cause irritation.

Adults with PIDD can help prevent sinusitis in several ways:

- Limit alcohol consumption, as it can inflame nasal passages.
- Try using a humidifier at home and at work, and be sure to maintain a clean filter in the unit as directed, and change water daily to avoid the creation of mold.
- Wear a mask around construction areas to limit exposure to fungus and molds.
- Discuss the use of decongestants with your healthcare provider—air travel can cause pain because of the changes in cabin pressure, and the use of decongestants may make the flight more comfortable.

Home remedies will not treat sinusitis, but some things can be done to minimize pain and discomfort. Some patients find the use of saline sprays helpful in keeping nasal passages from becoming dry and irritated. The use of warm steam from facial vaporizers or a bowl of hot water can also help. Warm compresses applied over inflamed sinus areas have been reported to reduce pain and discomfort.

Many patients find acupuncture helpful in reducing inflammation as well as decreasing pain and headaches associated with chronic sinusitis. Always consult your healthcare team before beginning any new treatment modality.

Unfortunately, chronic sinusitis is often a constant and major healthcare concern for people with PIDD. By being aware of the prevention methods, symptoms, and how to aggressively treat sinusitis, you might be able to forestall if not avoid that next sinus infection. ■

References

- American Academy of Otolaryngology. Common Problems of the Head and Neck Region. 1992. WB Saunders, Philadelphia, PA.
- American Academy of Otolaryngology-Head and Neck Surgery. Sinus Surgery. 2006.
- Cooper, Megan PhD, Pommering, Thomas, DO, Koranyi, Katalin, MD. Primary Immunodeficiencies. American Family Physician. Nov 2003.
- Department of Otolaryngology; Lucile Packard Children's Hospital, Stanford. 2006. Endoscopic Sinus Surgery.
- Lask, RP. 1996. Chronic Sinusitis-Surgical Management. WB Saunders, Philadelphia, PA.
- McClay, John, MD., et al. 2006. Pediatric Sinusitis; Surgical Treatment. Emedicine.com.
- Ramzi, Younis. 2005. Otolaryngology Head and Neck Surgery. Volume 131; 267-269.
- Slavin, RG, Spector, SL, Berstein, IL, Kaliner, MA, Kennedy, DW, Virant, FS, et al. The diagnosis and management of Sinusitis; A practice parameter update. J Allergy Clinical Immunology. 2005;116/6.s13-s47.
- Weinberger, Debra, MD. 2005. Pediatric Complications of Acute Sinusitis. Baylor College of Medicine.