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## PEDIATRIC SINUSITIS

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Sinusitis (rhinosinusitis) in children can look different than sinusitis in adults. More often, children have a cough, bad breath, crankiness, low energy, and swelling around the eyes, along with a thick yellow-green nasal or post-nasal drip. Most of the time, children are diagnosed with *viral* sinusitis (or a viral upper respiratory infection) that will improve by just being treated for its symptoms, but antibiotics can be considered in severe cases of *bacterial* sinusitis.<sup>1</sup> In the rare child where medical therapy fails, surgery can be used as a safe and effective method of treating sinus disease in children.

Your child's sinuses are not fully developed until late in the teen years. Although small, the maxillary (behind the cheek) and ethmoid (between the eyes) sinuses are present at birth. Like sinusitis in adults, pediatric sinusitis can be difficult to diagnose because the symptoms may be caused by other problems, such as a viral illness or allergy.

### WHAT ARE THE SYMPTOMS OF PEDIATRIC SINUSITIS?

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

- A cold lasting more than 10 to 14 days
- Low- or even high-grade fever
- Thick yellow-green nasal drainage for at least three days in a row
- Post-nasal drip, sometimes with sore throat, cough, bad breath, nausea and/or vomiting
- Headache, usually in children age six or older
- Irritability or fatigue
- Swelling around the eyes

### WHAT CAUSES PEDIATRIC SINUSITIS?

Young children are more prone to infections of the nose, sinus, and ears, especially in the first several years of life. Viruses, allergies, or bacteria usually cause sinusitis. Acute viral sinusitis is likely if your child has been sick for less than 10 days and is not getting worse. Acute bacterial sinusitis is likely when the sinusitis symptoms do not improve at all within 10 days of getting sick, or if your child gets worse within 10 days after beginning to get better.

Chronic sinusitis lasts 12 weeks or longer, and is usually caused by prolonged inflammation, instead of a long infection. Infection can be a part of chronic sinusitis, especially when it worsens from time to time, but is not usually the main cause.

### WHAT ARE THE TREATMENT OPTIONS?

If you take your child to an ENT (ear, nose, and throat) specialist, or otolaryngologist, they will examine your child's ears, nose, and throat. A thorough history and examination usually leads to the correct diagnosis. The doctor may also look for factors that make your child more likely to get a sinus infection, including structural changes, allergies, and problems with the immune system.

Occasionally, special instruments will be used to look into the nose during the office visit. Imaging (X-rays) of the sinuses, such as a CT scan, are not recommended in acute sinusitis unless there are complications from the infection. Radiation safety concerns may limit imaging scans, especially in children younger than six-years-old.

*Acute Sinusitis*—When bacterial sinusitis is present, most children respond very well to antibiotic therapy. Nasal steroid sprays or nasal saline (saltwater) drops or gentle sprays may also be prescribed for short-term relief of stuffiness. Over-the-counter decongestants and antihistamines are generally not effective for viral upper

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respiratory infections in children, and should not be given to children younger than two-years-old.<sup>2</sup>

If your child has acute bacterial sinusitis, symptoms should improve within the first few days of treatment with antibiotics. Even if your child improves dramatically within the first week of treatment, it is important that you complete the antibiotic therapy. Your doctor may decide to treat your child with additional medicines if he/she has allergies or other conditions that make the sinus infection worse.

*Chronic Sinusitis*—If your child suffers from two or more symptoms of sinusitis for at least 12 weeks and has signs of sinus pressure, he or she may have chronic sinusitis.<sup>3</sup> Chronic sinusitis or more than four to six episodes of acute sinusitis per year indicates that you should see an ENT specialist, who can recommend appropriate medical or surgical treatment.

Surgery may be considered for a small percentage of children with severe or persistent sinusitis symptoms despite medical therapy. In children under 13-years-old, your doctor may advise removing adenoid tissue<sup>4</sup> from behind the nose as part of the treatment for sinusitis. Although the adenoid tissue does not directly block the sinuses, infection of the adenoid tissue, called adenoiditis (infection of the back of the nose that can cause blockage), can cause many symptoms similar to sinusitis—runny nose, stuffy nose, post-nasal drip, bad breath, cough, and headache.

In older children and those for whom medical therapy has been unsuccessful, adenoidectomy or other surgical options may be recommended. An ENT surgeon can open the natural drainage pathways of your child's sinuses and make the narrow passages wider. This also allows for culturing the infection so that antibiotics can be directed specifically against the bacteria causing your child's sinus infection. Opening the sinuses allows nasal

medications to be distributed more effectively, allowing air to circulate and usually reducing the number and severity of sinus infections.

### **WHAT QUESTIONS SHOULD I ASK MY DOCTOR?**

1. What is the most appropriate antibiotic to use to treat a sinus infection in my child?
2. What are the complications from a sinus infection that I should be aware of for my child?
3. How do you prevent sinusitis from occurring?
4. Should I have my child tested for allergies?

### **References**

- 1: Wald, ER, et al. "Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years" *Pediatrics*. 2013;132(1):e261-80
- 2: Setzen G, Ferguson BJ, Han JK, et al., "Clinical consensus statement: appropriate use of computed tomography for paranasal sinus disease," *Otolaryngol Head Neck Surg*. 2012 Nov;147(5):808-16. doi: 10.1177/0194599812463848. Epub 2012 Oct 10.
- 3: Brietzke SE1, Shin JJ2, Choi S3, "Clinical consensus statement: pediatric chronic rhinosinusitis," *Otolaryngol Head Neck Surg*. 2014 Oct;151(4):542-53. doi: 10.1177/0194599814549302.
- 4: Brietzke SE et al. *Clinical Consensus Statement: Pediatric Chronic Rhinosinusitis*. *Otolaryngol Head Neck Surg*. 2014; 151(4).