



# Sinusitis in Children



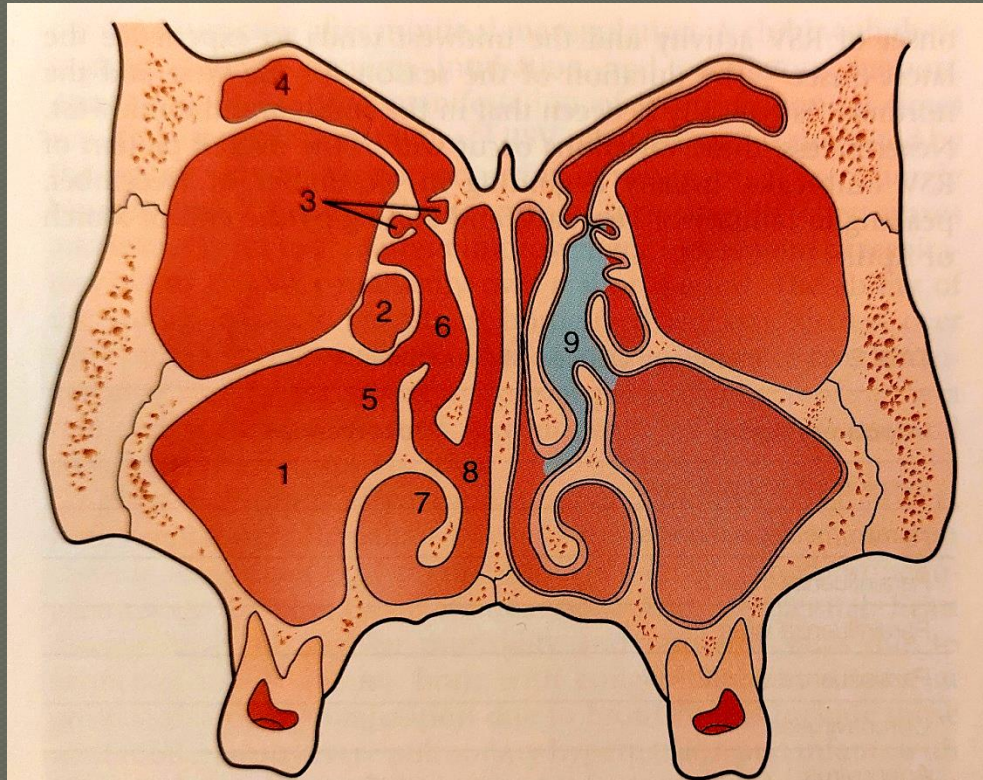
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# Anatomy of Sinuses

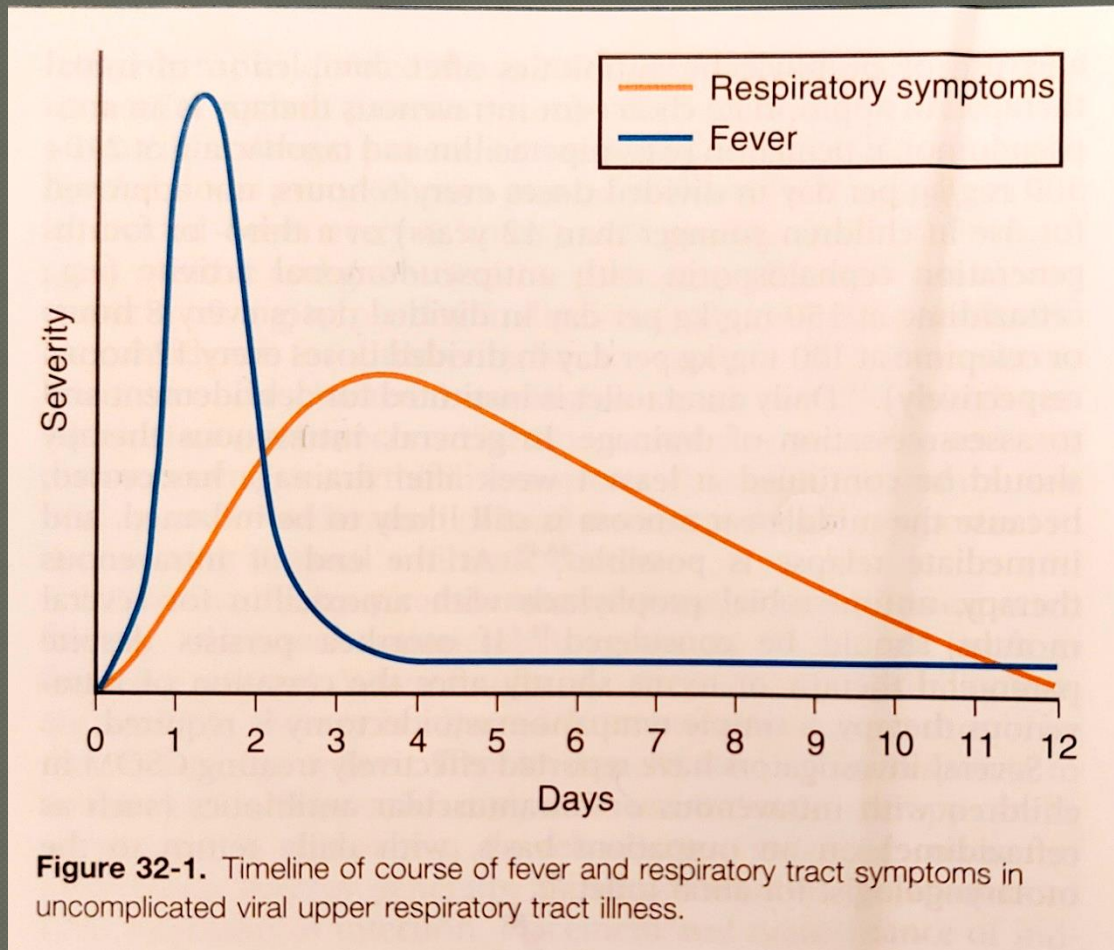


**Figure 32-2.** Coronal section of the nose and paranasal sinuses. 1, Maxillary sinus; 2, ethmoidal bursa; 3, ethmoidal cells; 4, frontal sinus; 5, unciniate process; 6, middle turbinate; 7, inferior turbinate; 8, nasal septum; 9 (blue area), ostiomeatal complex. (From Wald ER. Sinusitis in children. *N Engl J Med* 1992;326:319–323.)

# Factors Predisposing to Sinus Ostial Obstruction

<b>Mucosal Swelling</b>	<b>Mechanical Obstruction</b>
<b>SYSTEMIC DISORDER</b>	Choanal atresia
Viral upper respiratory tract infection	Deviated septum
Allergic inflammation	Nasal polyps
Cystic fibrosis	Foreign body
Immune disorders	Tumor
Immotile cilia	Ethmoid bulla
<b>LOCAL INSULT</b>	
Facial trauma	
Swimming, diving	
Drug-induced rhinitis	
Gastroesophageal reflux	

# Upper Respiratory Infection (URI)



# Clinical Manifestations of Acute Sinusitis

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## **PERSISTENT SYMPTOMS**

Nasal discharge, cough, or both present >10 days and not improving

## **SEVERE SYMPTOMS**

High fever (temperature  $\geq 39^{\circ}\text{C}$ ) and purulent nasal discharge together for >3 days

## **WORSENING SYMPTOMS**

Resolving upper respiratory symptoms

Worsening on day 6 or 7 with new or recurrent fever or exacerbation of nasal symptoms and/or cough

# Bacteriology of Sinusitis

<b>Bacterial Species</b>	<b>Acute (10–29 days)</b>	<b>Subacute (30–120 days)</b>	<b>Chronic (&gt;120 days)</b>
<i>Streptococcus pneumoniae</i>	+++	++	+
<i>Haemophilus influenzae</i>	+++	++	+
<i>Moraxella catarrhalis</i>	++	++	+
<i>Staphylococcus aureus</i>			+
Anaerobic bacteria <sup>a</sup>			+

<sup>a</sup>Respiratory anaerobic cocci, *Bacteroides* spp., *Prevotella* spp., *Veillonella* spp. +++, most common; ++, common; +, less common.

# Antibacterial Agents

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<b>Antimicrobial Agent</b>	<b>Dosage</b>
Amoxicillin	45–90 mg/kg per day in 2 divided doses
Amoxicillin/potassium clavulanate	45/10 mg/kg per day in 2 divided doses
Amoxicillin/potassium clavulanate (high dose)	90/6.4 mg/kg per day in 2 divided doses
Cefpodoxime proxetil	10 mg/kg once daily
Cefuroxime axetil	30 mg/kg per day in 2 divided doses
Cefdinir	14 mg/kg per day in 1 or 2 daily doses
Cefprozil	30 mg/kg per day in 2 divided doses

# Major Complications of Sinusitis

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## **ORBITAL**

Inflammatory edema<sup>a</sup>  
Subperiosteal abscess  
Orbital abscess  
Orbital cellulitis  
Optic neuritis

## **INTRACRANIAL**

Epidural empyema  
Subdural empyema  
Cavernous or sagittal sinus thrombosis  
Meningitis  
Brain abscess

## **OSTEITIS**

Frontal (Pott puffy tumor)

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<sup>a</sup>Inflammatory edema is not a true orbital complication of sinusitis. Infection is confined to the paranasal sinuses; periorbital swelling is due to impedance of venous blood flow.



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Thank you