

**TABLE 91-1** BACTERIAL CAUSE OF ACUTE SINUSITIS

ORGANISM	ADULTS (n = 339)		CHILDREN (n = 30)	
	Number of Isolates	% of Isolates	Number of Isolates	% of Isolates
<i>Streptococcus pneumoniae</i>	92	41	17	41
<i>Haemophilus influenzae</i>	79	35	11	27
Anaerobes	16	7		
Streptococcal species	16	7	3	7
<i>Moraxella catarrhalis</i>	8	4	9	22
<i>Staphylococcus aureus</i>	7	3		
Other	8	4	1	2

Mandell GL, Bennett JE, Dolin R, editors: Mandell, Douglas, and Bennett's principles and practice of infectious diseases, ed 7, Philadelphia, 2009, Churchill Livingstone.

**TABLE 91-2** DIAGNOSTIC SIGNS AND SYMPTOMS OF SINUSITIS

SYMPTOM OR SIGN	SENSITIVITY (%)	SPECIFICITY (%)	LIKELIHOOD RATIO
Maxillary toothache	18	93	2.5
No improvement with decongestants	41	80	2.1
Cough	70	44	1.3
Sore throat	52	56	1.2
Headache	68	30	1.0
Purulent secretion	51	76	2.1
Abnormal transillumination	73	54	1.6
Sinus tenderness	48	65	1.4
Fever	16	83	0.9

From Williams JW Jr, Simel DL, Roberts L, Samsa GP: Clinical evaluation for sinusitis: making the diagnosis by history and physical examination, *Ann Intern Med* 117:705–710, 1992.

## Treatment

Acute bacterial sinusitis resolves spontaneously within 2 weeks without antibiotic therapy. Antibiotic therapy hastens the resolution of symptoms and is recommended by guidelines from the major national organizations of internists, pediatricians, allergists, and otolaryngologists. Careful review of randomized controlled trials as reported in the Cochrane Database Systematic Reviews, however, concludes that the risks of antibiotics outweigh the benefits in routine cases in adults. The antibiotics of choice are amoxicillin or amoxicillin and clavulanic acid given for 10 days. Macrolides, sulfamethoxazole-trimethoprim, and doxycycline may be less effective because common bacteria are developing resistance. Patients should respond within 48 to 72 hours. Intranasal saline irrigation has been shown to give symptomatic relief. Intranasal steroids may help individuals with underlying allergic rhinitis. There are no convincing data supporting use of antihistamines or  $\alpha$ -adrenergic agonists. Surgery may be indicated for people with unresponsive sinusitis or those with intracranial or orbital complications.

Complications that are unusual include intracranial pathology such as subdural empyema, epidural abscess, brain abscess, meningitis and venous sinus thrombosis. Extracranial complications include orbital cellulitis, orbital abscess and subperiosteal abscess (Fig. 91-1). Immediate surgical intervention is indicated for orbital or intracranial abscesses. Refer to the Infectious Diseases Society of America guidelines for upper/respiratory tract infections for treat details.

## PHARYNGITIS, STOMATITIS, LARYNGITIS, AND EPIGLOTTITIS

### Pharyngitis

#### Definition and Epidemiology

Pharyngitis or sore throat is mucous membrane inflammation localized to the posterior pharynx and contiguous membranes.

Stomatitis, laryngitis, and epiglottitis are similar processes in the indicated locations. These infections are extremely common. In the acute care setting in the United States, for example, pharyngitis accounts for 7 million pediatric and 6 million adult visits each year. Peak incidence is typically in the winter months.

#### Etiology

Viruses cause 70% to 90% of cases of pharyngitis with rhinovirus being the most common. Adenovirus, which typically occurs in the late winter, is common in children less than 5 years of age and in young adults. Enteroviruses cause syndromes of herpangina (e.g., coxsackie group A); hand, foot, and mouth disease (e.g., coxsackie A16 and enterovirus 71); and nonspecific illnesses (e.g., group B coxsackie and echovirus). Herpes simplex virus causes pharyngitis and stomatitis in children and college students. Many other viruses cause pharyngitis, including Epstein-Barr virus, influenza virus, parainfluenza virus, and cytomegalovirus.

Group A streptococci (GAS) accounts for 10% to 30% of cases in children and 5% to 0% of cases in adults. In winter months up to 50% of cases may be due to GAS. Other bacterial causes, including group C and G streptococci and *Fusobacterium necrophorum*, are much less common. Noninfectious causes of pharyngitis include Beçhet's syndrome, Kawasaki disease, and aphthous stomatitis.

#### Clinical Presentation

The main job of clinicians is to distinguish GAS from viral pharyngitis. Typically, GAS presents with sudden onset of pain on swallowing, tender cervical lymph nodes and fever without cough and coryza. Viral etiologies may be accompanied by cough, coryza, and conjunctivitis (typically adenovirus). Scarlet fever consisting of a fine maculopapular rash like "sand paper" that desquamates and a strawberry tongue (prominent lingual papillae) indicates GAS. However, even experienced clinicians can distinguish viral from bacterial causes of pharyngitis only 50% of the time.