

CHAPTER 20

Sore Throat

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PERSPECTIVE

Epidemiology

Sore throat and throat-related complaints¹ are among the most common presenting complaints, not just in emergency departments (EDs) but also in outpatient care settings in the United States.^{1,2} Although individuals of all ages commonly develop sore throat, some subtypes of pharyngitis and peripharyngeal disorders are more common in children and adolescents. For example, the epidemiology of group A streptococcal pharyngitis is characteristic in that it is primarily a disease of children 5 to 15 years of age and is rarely seen in those younger than 3 years.

Pathophysiology

Sore throat, or pharyngitis, is generally caused by inflammation in the soft tissue of the pharynx. There are three anatomically distinct regions of the pharynx—the nasopharynx, oropharynx, and hypopharynx (Fig. 20.1). Pathology involving one site usually involves the others, but inflammation at any of these levels can manifest as a sore throat. The nasopharynx encompasses the area superior to the oral cavity, between the base of the skull and soft palate. The eustachian tubes, connecting the middle ear and pharynx, open into this space. The oropharynx is the region directly visible on examination, lying behind the oral cavity, between the uvula and hyoid, including the vallecula and epiglottis. Laterally, it is defined by the tonsillar pillars. The hypopharynx is the most caudal aspect of the pharynx. It lies inferior to the epiglottis and terminates where the aerodigestive paths become distinct, at the esophagus and larynx; the vocal cords define the inferior pole. If one looks directly at a patient, this region is posterior and slightly superior to the thyroid cartilage. There are several important potential spaces surrounding the pharynx; disease in the retropharyngeal and submandibular spaces can manifest as pain and, ultimately, airway compromise.

The terms *pharyngitis* and *tonsillitis* are often used interchangeably; however, the tonsils are distinct lymph tissue located throughout the pharynx. Waldeyer's tonsillar ring, or the pharyngeal lymphoid ring, consists of the pharyngeal (adenoids), tubal, palatine, and lingual tonsils. The palatine tonsils are located on the sides of the oropharynx, between the palatoglossal and palatopharyngeal arches. These immunologic masses are commonly implicated in sore throat and are referred to colloquially as the tonsils. Regional infections, viral and bacterial, commonly trigger inflammatory changes in this collection of lymphatic tissue. Whereas inflammation and swelling of the soft tissues in the oropharynx are the most likely cause in patients with a sore throat, any of the anatomic structures or surfaces within the nasopharynx or hypopharynx can be affected by disease leading to a sore throat. Cranial nerves IX and X supply sensory innervation to the region.

DIAGNOSTIC APPROACH

Differential Considerations

The differential diagnosis for sore throat presentations is extremely broad, but major categories to consider in order of frequency include infectious and noninfectious (neoplastic, inflammatory, traumatic) and referred pain from acute coronary syndrome.

Pivotal Findings

Symptoms and Signs

The evaluation of sore throat begins with a simultaneous assessment of the airway and the patient's general appearance. The general appearance should be assessed, with attention to hydration status and markers of systemic toxicity. Patients, particularly children, with significant pain from uncomplicated pharyngitis often have difficulty with oral intake and may become dehydrated. Fever and mild tachycardia are common vital sign derangements in pharyngitis and do not typically indicate dangerous pathology. A prolonged fever (>5–7 days) in children may also be associated with Kawasaki disease.³

Patients with airway compromise often sit upright or lean forward, with the neck extended and jaw thrust forward, and appear restless and distressed. Drooling may indicate an inability to swallow oral secretions and thus inflammation or pathology in the oropharynx or hypopharynx may be present. Drooling is a sign of an advanced airway process, requiring prompt preparation for detailed evaluation and intervention. The presence of a muffled voice should prompt consideration of a supraglottic threat to airway patency. The floor of the mouth should be visualized and, when indicated, the submental region palpated as a brawny induration or tenderness in this area is classically associated with Ludwig's angina (Table 20.1). Stridor, a high-pitched noise heard on inspiration, suggests a process involving the glottic or infra-glottic structures. Stridor indicates partial obstruction, a true airway emergency except when occurring in young children (<10 years) with croup (see Chapter 167). Stridor is associated with ominous conditions such as epiglottitis, retropharyngeal abscess, and angioedema, and the severity, rate of onset, and progression of symptoms may help indicate the urgency of any required intervention. Patients who have a mass lesion causing sore throat symptoms may have associated dysphagia or odynophagia, hoarseness, weight loss, and lymphadenopathy. Those who have acute coronary syndrome with referred throat pain may have associated chest pain, dyspnea, or diaphoresis.

Direct visualization of the pharynx is typically the most helpful portion of the encounter; thus, complete and unencumbered visualization of the pharyngeal structures is mandatory. Lingual resistance may require coaching or stimulation of a gag reflex, and trismus or pain will often require analgesia. If impressive tonsillar

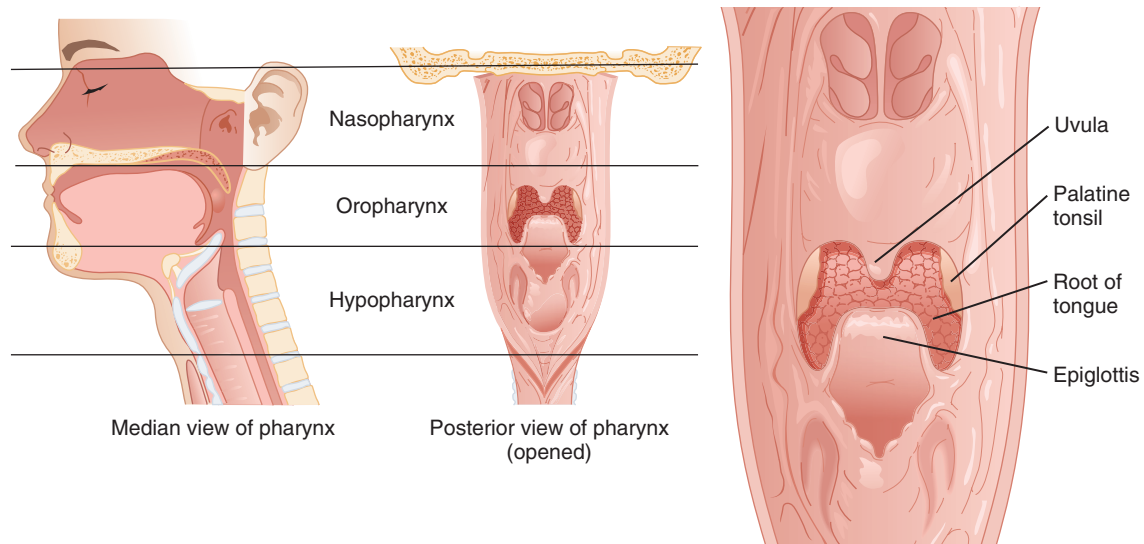


Fig. 20.1. Anatomy of the nasopharynx, oropharynx, and hypopharynx.

TABLE 20.1

Differential Diagnosis for Sore Throat

INFECTIOUS CAUSES				
VIRAL	AEROBIC		ANAEROBIC	OTHER
	Common	Uncommon		
Rhinovirus	<i>Streptococcus pyogenes</i> (GABHS)	<i>Haemophilus influenzae</i>	<i>Bacteroides</i> spp.	<i>Candida</i> spp.
Adenovirus	GABHS	<i>Haemophilus parainfluenzae</i>		
<i>Peptostreptococcus</i> spp.	<i>Coccidioides</i> spp.			
Coronavirus	Non-group A streptococcus	<i>Corynebacterium diphtheriae</i>	<i>Peptococcus</i> spp.	
Herpes simplex virus 1, 2	<i>Neisseria gonorrhoeae</i>	<i>Streptococcus pneumoniae</i>	<i>Clostridium</i> spp.	
Influenza A, B	<i>Neisseria meningitidis</i>	<i>Yersinia enterocolitica</i>	<i>Fusobacterium</i> spp.	
Parainfluenza	<i>Mycoplasma pneumoniae</i>	<i>Treponema pallidum</i>	<i>Prevotella</i> spp.	
Cytomegalovirus	<i>Arcanobacterium haemolyticum</i>	<i>Francisella tularensis</i>		
Epstein-Barr virus	<i>Chlamydia trachomatis</i>	<i>Legionella pneumophila</i>		
Varicella-zoster virus	<i>Staphylococcus aureus</i>	<i>Mycobacterium</i> spp.		
Hepatitis virus				
NONINFECTIOUS CAUSES				
SYSTEMIC	TRAUMA, MISCELLANEOUS		TUMOR	
Kawasaki disease	Penetrating injury Angioneurotic edema		Tongue	
Stevens-Johnson syndrome	Retained foreign body Anomalous aortic arch		Larynx	
Cyclic neutropenia	Laryngeal fracture Calcific retropharyngeal tendinitis		Thyroid	
Thyroiditis	Retropharyngeal hematoma		Leukemia	
Connective tissue disease	Caustic exposure			

GABHS, Group A beta-hemolytic streptococci.

erythema or exudates are observed in a symmetric distribution, and the patient has no signs of airway involvement, acute tonsillitis is present, and further investigation is rarely warranted. There are various scoring systems, the most well-known of which is the Centor criteria system (Table 20.2),⁴ which incorporate compo-

nents of the history and physical examination to generate an estimate of the likelihood of group A streptococcal infection (GAS). The four Centor criteria are history of fever, tonsillar exudates, tender anterior cervical adenopathy, and absence of cough. A later modification added a fifth criterion (subtract 1

TABLE 2.2

Modified Centor Criteria^a and Likelihood of Streptococcal Infection

CRITERIA: # OF CRITERIA PRESENT	HISTORY OF FEVER	TONSILLAR EXUDATES GABHS	TENDER CERVICAL LAD	COUGH ABSENT
1		1%		
2		17%		
3		35%		
4		51%		

^aSubtract 1 point for age >45 yr.

GABHS, group A beta-hemolytic streptococci; LAD, lymphadenopathy.

point for age >45 years). Using the criteria, the prevalence of GAS is about 50% in patients with scores of 4 or higher, one third with a score of 3, less than 20% with a score of 2, 10% with a score of 1, and near zero with a score of 0 or –1. In contrast, visualization of ulcerations, or presence of rhinorrhea, sneezing, or conjunctivitis point more to a viral cause of the pharyngitis. Unilateral swelling and contralateral uvular deviation, typically without exudates, suggest peritonsillar abscess. Involvement of the entire oropharynx indicates pharyngitis. If, however, the patient has significant symptoms and no oropharyngeal pathology on examination, evaluation for disease in the hypopharynx, especially epiglottitis, by direct or indirect visualization is indicated. Other potential sinister causes for when a patient presents with significant symptoms and a relatively normal oropharyngeal examination include retropharyngeal abscess and parapharyngeal abscess.

Ancillary Testing

In the context of acute pharyngitis, diagnostic testing with the rapid antigen detection test (RADT) or culture is helpful to distinguish between GAS and non-GAS pharyngitis (particularly viral causes) for the purpose of selecting patients who may benefit from antimicrobial therapy. If the patient has a clear-cut viral cause for the pharyngitis, with oral ulcers, cough, rhinorrhea, and hoarseness, then no testing (or treatment) for GAS is indicated. Additionally, because of the rarity of GAS and rheumatic fever in children younger than 3 years, testing is also generally not indicated in this age group. Unfortunately, even with the use of the Centor criteria, clinical features alone often do not allow the emergency clinician to discriminate GAS from viral pharyngitis reliably, and the overprescribing of inappropriate antimicrobial therapy for viral pharyngitis contributes to the undesirable adverse effects of (unnecessary) antibiotics and to antimicrobial resistance. The primary reasons for treating patients with culture-proven GAS in the setting of acute pharyngitis are to decrease the risk of suppurative (eg, peritonsillar abscess, cervical lymphadenitis, mastoiditis, possibly internal jugular septic thrombophlebitis) and nonsuppurative (acute rheumatic fever) complications of GAS.⁵ Additionally, antimicrobial treatment may decrease the duration and severity of illness and reduce the risk of transmission to close contacts. Although many western industrialized nations, where rheumatic fever tends to be exceedingly rare, have abandoned this approach because the inaccuracy and risks of testing and treatment seem to outweigh benefits, the Centers for Disease Control and Prevention (CDC) and Infectious Disease Society of America (IDSA) guidelines of 2012 recommend a combination of clinical assessment and bacteriologic testing, with the goal of treating with antibiotics for proven or strongly suspected GAS.⁶ Because the sensitivity of the RADT is only approximately 70% to 90%, the IDSA recommends that for children and adolescents, a negative RADT should be followed up with a throat

culture. In contrast, a positive RADT does not warrant follow-up throat culture testing because of its high specificity (95%). The IDSA does not recommend that a negative RADT be followed up with a throat culture in adults, in whom the incidence of GAS and risk of subsequent rheumatic fever is extremely low, when compared to children and adolescents.

Heterophile antibody testing for mononucleosis, testing for acute retroviral syndrome, and other possibilities may also be considered in patients with an extended clinical course, unusual features, or treatment failure, largely to exclude other causes and to ensure appropriate advice regarding issues such as contagion and activity limitations (see Chapters 62 and 122).^{7,8}

Imaging

Although radiographic imaging has long been recommended for evaluation of the epiglottis and structures in the hypopharynx, direct visualization of the structures of interest by examination is preferable, providing definitive diagnosis, assessment of airway threats, and the ability to plan for or perform endotracheal intubation. In adults with possible epiglottitis, particularly those with severe symptoms such as drooling, distress, or muffled voice, examination via nasopharyngoscopy at the bedside or via laryngoscopy in the operating room setting is the best approach. Examination of this sort, however, should occur under a so-called double setup, with availability of and preparation for an emergent rescue airway, usually cricothyrotomy, because manipulation of the irritated upper airway tissues may precipitate laryngospasm and obstruction. Endoscopic examination also allows identification of other life-threatening causes beyond infection such as foreign bodies, polyps, and angioedema. If there is concern for epiglottitis but upper airway examination by endoscopy is not possible (eg, equipment unavailable) and the patient has a stable airway, plain film radiography may be useful to assess for changes such as the thumb sign—widening of the epiglottis silhouette (Fig. 20.2).⁹ The approach to pediatric airway infection, including epiglottitis, is described in Chapters 167 and 168.

Ultrasound is another technology with applications for the detection of neck masses from tumors and hypopharyngeal conditions, including epiglottitis. In a convenience sample of adults, the epiglottis was easily visualized and measured in males and females,¹⁰ and recent case reports, as well as a small, controlled ED study of ultrasound for epiglottitis, have suggested that this noninvasive bedside tool may prove useful.^{10,11}

In a child or adult with signs and symptoms of a deep neck infection such as retropharyngeal abscess and whose airway security has been ensured, the most useful imaging modality is computed tomography (CT) of the neck. The lateral neck x-ray examination is a relatively sensitive test for this disease, so in lower risk patients a normal film (no widening of the prevertebral space, normal lordotic curve of the spine, and absence of soft tissue air)

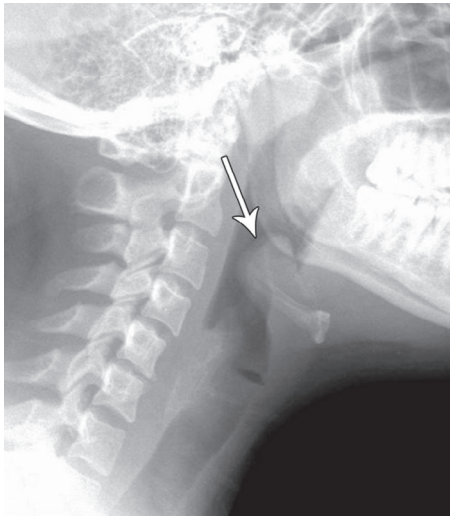


Fig. 20.2. Soft tissue lateral neck x-ray demonstrating thumb sign or widening of the epiglottis silhouette (arrow).

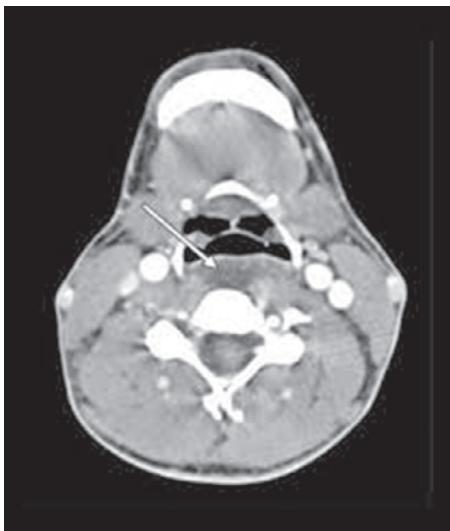


Fig. 20.3. CT scan of retropharyngeal abscess.

can be a useful risk stratification tool.¹² Ultimately, however, CT is the definitive evaluation for deep neck infection (Fig 20.3). It is highly accurate at detecting infection in the deep tissues, but its ability to differentiate between cellulitis and abscess is variable.¹³ Also, CT may help discern tumors or hemorrhage from abscesses and delineate invasion of nearby structures. In children with a sore throat and visible inflammatory neck mass, ultrasound diagnosis can be definitive.

DIAGNOSTIC ALGORITHM

Critical and Emergent Diagnoses

Box 20.1 outlines critical diagnoses and emergent diagnoses that have the potential to cause airway compromise that may warrant specific intervention. For example, in patients with Ludwig's angina, securing the airway, promptly initiating antibiotic treatment and fluid resuscitation, and obtaining prompt evaluation by an otolaryngologist may be lifesaving. If there are signs of airway compromise or impending airway compromise in addition to preparing for advanced airway management, the emergency clinician should immediately move to a detailed intraoral physical

BOX 20.1

Critical and Emergent Diagnoses in Patients Presenting With Sore Throat

CRITICAL DIAGNOSES

- Epiglottitis causing airway compromise
- Retropharyngeal or parapharyngeal abscess causing airway compromise
- Peritonsillar abscess causing airway compromise
- Ludwig's angina
- Angioedema
- Croup causing stridor at rest
- Lemierre's syndrome from septic internal jugular septic thrombophlebitis
- Acute coronary syndrome presenting with referred throat pain

EMERGENT DIAGNOSES

- Trauma causing a nonexpanding neck hematoma
- Mass lesion in the neck causing sore throat
- Epiglottitis, retropharyngeal, parapharyngeal, or peritonsillar abscess not causing airway compromise

URGENT DIAGNOSES

- Group A streptococcal pharyngitis

examination, ideally while initiating any available consultations such as otolaryngology or surgical services. This examination should concentrate on the detection of masses such as sublingual edema, visible abscess, and foreign bodies. If such a mass can be visualized, disease-specific decisions about imaging, potential airway management, or surgical procedures (eg, abscess drainage) can be made.

In patients without signs of airway compromise, the pace of execution can be more deliberate; a primary question is whether or not findings consistent with pharyngitis are visible. If exudates, erythema, or cobblestoning of the posterior pharyngeal wall is evident, pharyngitis is likely present. At this point, consideration of less common causes (eg, gonococcal infection, mononucleosis) should be explored by concentrating on features in the history such as recent exposures and duration, and the possibility of extremely rare entities (eg, Lemierre's syndrome) may be entertained as well.¹⁴ In the absence of unusual features that predispose to these diagnostic possibilities, pharyngitis is likely to be viral or streptococcal in origin and may be empirically managed as such.¹⁵

EMPIRICAL MANAGEMENT

Fig. 20.4 shows a clinical algorithm for the initial management of the sore throat presentation. Airway compromise and impending airway compromise, when present, must be addressed first. Infectious syndromes suggesting severe systemic illness or sepsis should be treated accordingly. Patients who clinically appear to have no potential for airway compromise and no signs of invasive or systemic disease can be managed according to presumptive causes.

Usually, sore throat will be caused by viral pharyngitis, in which case pain management with acetaminophen or nonsteroidal antiinflammatory drugs (NSAIDs) is the mainstay of care and the most important initial step in empirical management. Regimented administration of these agents, rather than the use of as-needed approaches that fail to prevent or interrupt spiraling pain, is often helpful. Two recent systematic reviews have concluded that acute pharyngitis, including GAS pharyngitis, should not routinely be treated with antibiotics.^{16,17} It is thought that the decline of rheumatic fever may be unrelated to trends in antibiotic

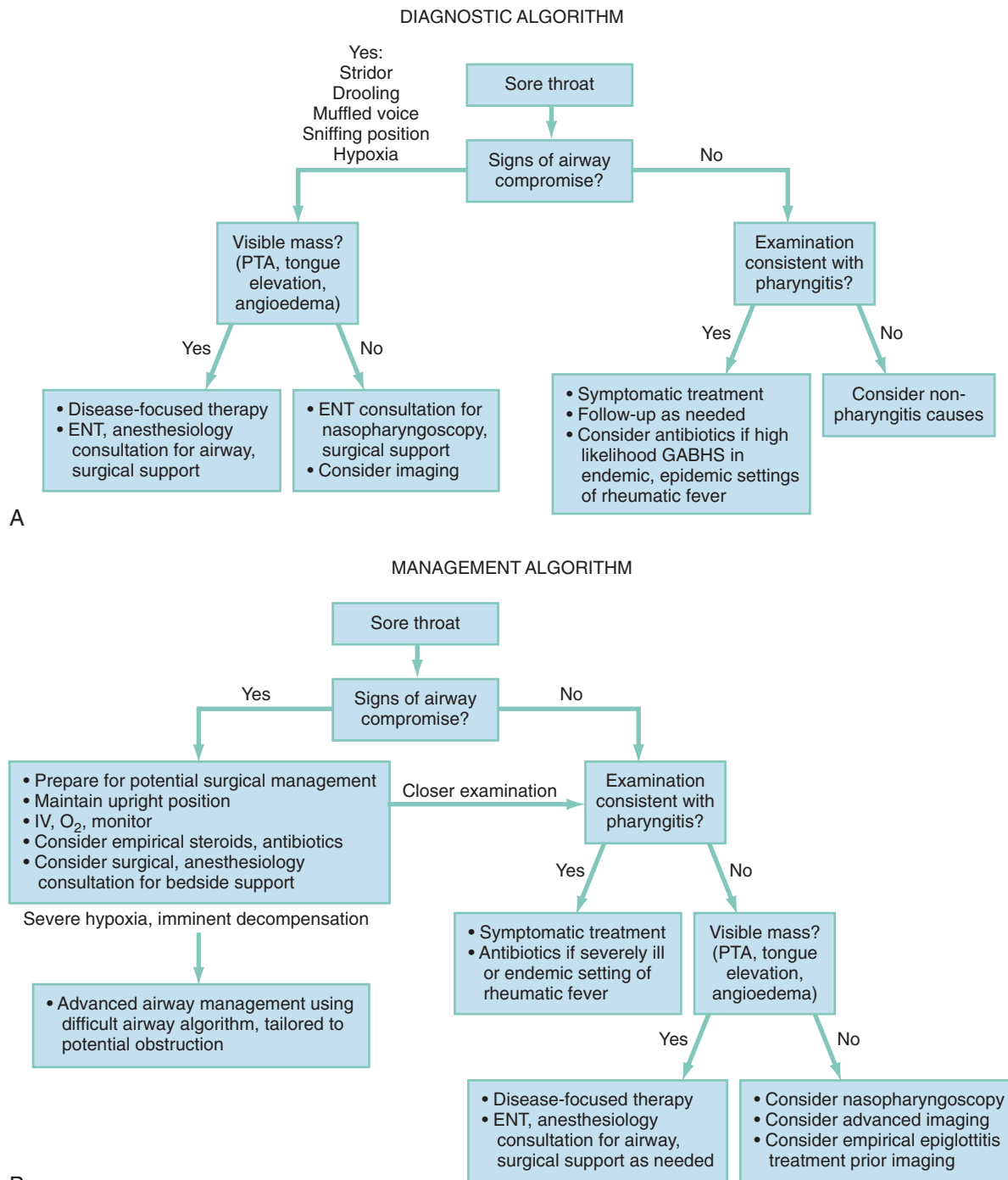


Fig. 20.4. Clinical approach to the patient with sore throat, diagnosis and management. *ENT*, Ear-nose-throat; *GABHS*, Group A beta-hemolytic streptococci; *IV*, intravenous; *PTA*, peritonsillar abscess.

use, but rather is a result of factors associated with industrialization, including improved living conditions, access to care, hygiene, and nutrition.¹⁸ This explains the current epidemiology of rheumatic fever, a disease that is extremely rare in developed nations but continues to be an important public health threat in developing regions worldwide.^{19,20} Notably, adverse events caused by antibiotics are common and frequently result in ED visits, and the overuse of antibiotics for self-limiting conditions such as upper respiratory tract infections remains rampant.²¹ Indeed, the inappropriate prescription of antibiotics for viral pharyngitis in the United States has remained unchanged over time in recent decades, even despite extensive public health messaging to reduce

the problem.²² Thus, for public health reasons and prevention of unnecessary individual harm, antibiotics should be avoided in the management of viral pharyngitis.

Education of patients, who will often expect or desire antibiotics, is a key part of management. Education should provide a careful explanation of the following: (1) the self-limited nature of viral pharyngitis; (2) the lack of symptomatic or other benefit with antibiotics; and (3) the potential harm of antibiotics (eg, individual and population resistance, fungal infections in women, rashes, gastrointestinal effects, recurrence of pharyngitis, occasionally dangerous allergic reactions). It is often most important to emphasize that symptom reduction can be achieved with the

BOX 20.2

Antibiotic Regimens for Proven Group A Streptococcal Pharyngitis

Benzathine penicillin G, intramuscular, 600,000 U for <27 kg and 1.2 million U for >27 kg

Pencillin V oral, 50 mg/kg/day qid × 10 days

Amoxicillin, 40 mg/kg/day tid × 10 days

If penicillin-allergic:

Clindamycin, 7 mg/kg/dose tid (maximum, 300 mg/dose) × 10 days

Cephalexin, 20 mg/kg dose bid (maximum, 500 g/dose) × 10 days

Azithromycin, 12 mg/kg/day (maximum dose, 500 mg) × 5 days

various interventions that target pain control—for example, NSAIDs.²³

However, major organizations such as the IDSA and CDC support targeted testing and antimicrobial therapy for proven GAS pharyngitis and tonsillitis.⁶ Moreover, because eradicating GAS from the pharynx with appropriate antibiotic administration may reduce the duration and severity of illness, decrease the risk for suppurative and nonsuppurative complications, and reduce infectivity and transmission to close contacts, I recommend treatment with intramuscular benzathine penicillin G or a 10-day course of oral penicillin VK because of proven efficacy and low cost. See Box 20.2 for antibiotic regimens and alternative agents for those who are allergic to penicillin. For severe pharyngitis causing difficulty swallowing, corticosteroid therapy reduces pain and duration of pain, with most studies using 0.6 mg/kg (maximum dose, 10 mg) of dexamethasone, orally or parenterally, in a single dose.²⁴ Opioid pain medication rarely is indicated, and the presence of such severe pain may indicate a more severe

syndrome such as abscess or epiglottitis, requiring additional evaluation. Proper pain management allows patients to reestablish nutritional balance, achieve and maintain a hydrated state, and ingest medications, as necessary.

In the setting of clinical pharyngitis, a fluctuant unilateral peritonsillar mass should be drained whenever possible. Drainage in such cases constitutes definitive care.²³ Although there are no data to support or refute the administration of antibiotics in cases of unilateral swelling and redness that appears not to be fluctuant (ie, so-called peritonsillar cellulitis), I recommend the same antibiotics that are used for GAS pharyngitis for these patients (see Box 20.2). For patients with manifestations of severe, systemic illness (ie, those requiring hospitalization or with impending airway compromise), antibiotic coverage for streptococcal and anaerobic bacteria may theoretically be helpful. I recommend the administration of parenteral clindamycin (900 mg tid) and a third-generation cephalosporin such as ceftriaxone (50 mg/kg or 1 g bid), although no firm evidence is available to support or refute this practice. Other specific empirical therapies or consultation may be necessary for severe or unusual presentations of disease.

Finally, the great majority of patients will be able to manage their condition on an outpatient basis. For those with actively present or potentially impending airway threat, surgical intensive care settings are often appropriate, although this will depend on nursing ratios, local comfort level with airway management, and ability for the patient to be monitored closely in alternate settings. In such cases, as well as in cases of confirmed deep space infection (eg, neck abscess, parapharyngeal abscess, Ludwig's angina), surgical consultation for potential operative management or for imaging modalities such as nasopharyngoscopy is generally important and helpful. Some patients with pharyngitis may also benefit from inpatient management, usually those with systemic illness who are unable to tolerate oral therapies or nutrition.

KEY CONCEPTS

- Sore throat is a chief complaint that can represent life-threatening diagnoses and extreme challenges for the emergency clinician, primarily in the form of airway threats and/or deep space infections.
- The five modified Centor criteria award 1 point for each of the following: (1) history of fever; (2) presence of exudates; (3) presence of anterior cervical adenopathy; and (4) absence of cough, and subtract 1 point for (5) age older than 45 years. Patients with scores of –1 to 1 are very unlikely to have GAS infection. Scores of 4 or 5 correspond to a 50% likelihood of GAS, which drops to approximately 30% with a score of 3 and below 20% with a score of 2.
- Physical examination is central to detecting airway threats and determining diagnosis.
- The absence of physical findings during oropharyngeal examination in the setting of severe sore throat symptoms suggests that lower structures may be involved, and endoscopic examination of the upper airway is advisable.
- Antibiotics are more harmful than helpful for patients with viral pharyngitis, which is self-limiting.
- For GAS-proven pharyngitis, a single injection of penicillin or 10-day course of oral penicillin is recommended to decrease the duration of symptoms, transmission to close contacts, and prevention of the rare suppurative and nonsuppurative sequelae.

The references for this chapter can be found online by accessing the accompanying Expert Consult website.

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CHAPTER 20: QUESTIONS & ANSWERS

- 20.1.** When a patient presents to the emergency department (ED) complaining of a sore throat, which is the most valuable component of the diagnostic evaluation?
- Computed tomography (CT) evaluation of the soft tissues
 - Direct visualization of the oropharynx
 - Plain film radiography
 - Serologic testing

Answer: B. Direct visualization of the pharynx is typically the most helpful portion of the encounter. Thus, complete and unencumbered visualization of the pharyngeal structures is mandatory. Lingual resistance may require coaching or stimulation of a gag reflex, and trismus or pain will often require analgesia. If impressive tonsillar erythema or exudates are observed in a symmetric distribution, and the patient has no signs of airway involvement, acute tonsillitis is present, and further investigation is rarely warranted.

- 20.2.** Historically, there was emphasis on determining whether infectious pharyngitis was bacterial or viral in origin. Many industrialized countries have abandoned the search for group A streptococci in the context of pharyngitis for the following reason(s):
- All of these.
 - Antibiotics do not improve the symptoms associated with viral pharyngitis.
 - Risks of treatment outweigh benefits.
 - The prevalence of rheumatic fever is exceedingly rare in industrialized nations.

Answer: A. The great majority of cases are viral in origin, and suppurative complications following streptococcal infection are easily treated and occur too rarely to justify routine use of antibiotics. Rheumatic fever is a disease that is extremely rare in developed nations. Additionally, adverse events caused by antibiotics are common and frequently result in ED visits.

- 20.3.** A 40-year-old man presents with a complaint of sore throat. He is febrile, 102°F (39°C), reports considerable pain with swallowing, and has a moderate sensation of

tightness in his throat. On examination, you note that the patient is sitting up; you observe only mild erythema to the tonsillar tissue. What should be the next step?

- Discharging patient home with a prescription for nonsteroidal antiinflammatory drugs (NSAIDs)
- Intramuscular injection of penicillin
- Nasopharyngoscopy at the bedside
- Sending the patient to radiology for a CT scan of the neck

Answer: C. The severity of his symptoms, which are disproportionate to the physical examination, is concerning for other more sinister diagnoses such as epiglottitis, parapharyngeal abscess, and retropharyngeal abscess.

- 20.4.** A healthy 20-year-old, nonsexually active female presents with a complaint of a sore throat. She is febrile and mildly tachycardic. On evaluation, she looks uncomfortable but is in no distress. She has cervical adenopathy, and direct visualization of the oropharynx reveals symmetric tonsillar erythema and diffuse exudates. Ideal management for this patient would include which of the following?
- Ceftriaxone, 250 mg IM once
 - Ibuprofen, 400 mg every 4 to 6 hours, dexamethasone (Decadron), 10 mg once, and acetaminophen-oxydione (Percocet), 5/325 mg qid PRN
 - Ibuprofen 400 mg every 4 to 6 hours, penicillin G IM once
 - Unasyn (Ampicillin-sulbactam), 3 g IV, and incision and drainage

Answer: C. Usually, sore throat is caused by acute pharyngitis, in which case pain management with acetaminophen or NSAIDs is the mainstay of care and the most important initial step in empirical management. The Centor criteria, incorporating components of the history and physical examination to generate an estimate of group A streptococci (GAS), are listed in [Table 20.2](#) with the results of one classic study, and this patient would be a candidate for antibiotic treatment.