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Clinical Review

CLINICAL MIMICS: AN EMERGENCY MEDICINE-FOCUSED REVIEW OF STREPTOCOCCAL PHARYNGITIS MIMICS

Michael Gottlieb, MD, RDMS,* Brit Long, MD,† and Alex Koefman, MD‡

*Department of Emergency Medicine, Rush University Medical Center, Chicago, Illinois, †Department of Emergency Medicine, San Antonio Military Medical Center, Fort Sam Houston, Texas, and ‡Department of Emergency Medicine, The University of Texas Southwestern Medical Center, Dallas, Texas

Reprint Address: Brit Long, MD, Department of Emergency Medicine, San Antonio Military Medical Center, 3841 Roger Brooke Drive, Fort Sam Houston, TX 78234

Abstract—Background: Pharyngitis is a common disease in the emergency department (ED). Despite a relatively low incidence of complications, there are many dangerous conditions that can mimic this disease and are essential for the emergency physician to consider. **Objective:** This article provides a review of the evaluation and management of group A β -hemolytic Streptococcal (GABHS) pharyngitis, as well as important medical conditions that can mimic this disease. **Discussion:** GABHS pharyngitis often presents with fever, sore throat, tonsillar exudates, and anterior cervical lymphadenopathy. History and physical examination are insufficient for the diagnosis. The Centor criteria or McIsaac score can help risk stratify patients for subsequent testing or treatment. Antibiotics may reduce symptom duration and suppurative complications, but the effect is small. Rheumatic fever is uncommon in developed countries, and shared decision making is recommended if antibiotics are used for this indication. Oral analgesics and topical anesthetics are important for symptom management. Physicians should consider alternate diagnoses that may mimic GABHS pharyngitis, which can include epiglottitis, infectious mononucleosis, Kawasaki disease, acute retroviral syndrome, Lemierre's syndrome, Ludwig's angina, peritonsillar abscess, retropharyngeal abscess, and viral pharyngitis. A focused history and physical examination can help differentiate these conditions. **Conclusions:** GABHS may present similarly to other benign and potentially deadly diseases. Diagnosis and treatment of pharyngitis should be based on clinical evaluation. Consideration of pharyngitis mimics is important in the evaluation

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CASE REPORT

A 22-year-old male presented to the emergency department (ED) with sore throat for the past week. He complained of fever, throat pain, difficulty swallowing, and pain with neck movement. He had a fever of 38°C, heart rate of 115 beats/min, and blood pressure of 108/62 mm Hg. On examination, he was in mild distress but was able to tolerate his oral secretions. His oropharyngeal examination was significant for tonsillar exudates without uvular deviation. He had no sublingual edema, but decreased neck range of motion was present. An x-ray study demonstrated retropharyngeal soft-tissue edema, which was confirmed to be an abscess on computed tomography (CT). He was given intravenous ampicillin-sulbactam and methylprednisolone. Otolaryngology was consulted, and he was taken to the operating room for surgical drainage.

INTRODUCTION

Pharyngitis is a common condition evaluated and managed in the ED, with more than 2 million ED visits

annually (1–3). Patients typically present with sore throat, fever, and inflammation of the pharynx (2–4). Group A β -hemolytic Streptococcus (GABHS) accounts for up to 30% of sore throats in pediatric patients and 5–15% in adult patients (3–6). In the United States, GABHS pharyngitis has been estimated to cost more than \$500 million in health care costs each year (7). While most cases resolve without complications, GABHS may result in significant morbidity in select patients (6–10). Additionally, there are several diseases that mimic this condition and are essential for the emergency physician to consider when evaluating this common presentation.

DISCUSSION

Pharyngitis may be due to a myriad of causes (2,8,10). The most common etiology is direct inflammation of the oropharynx by an infection, which is caused by a viral source in the majority of cases (3–5,11–16). Despite this, up to 60% of patients managed in U.S. ambulatory care clinics received antibiotics for a sore throat (11). GABHS is less common but is a frequent concern among patients when requesting antibiotics. GABHS is spread through respiratory droplets and predominantly affects patients aged 5–15 years (8,9). Infections occur most commonly in late winter to spring (8,9). In the absence of host immunologic response to the organism, GABHS can reside in the oropharynx without symptoms and, in this setting, the individual is considered a carrier. Up to 20% of asymptomatic school-aged children are carriers, which increases to 25% if household contacts are positive for GABHS (16,17).

Because other etiologies may present similarly, the history and physical examination are not definitive for the diagnosis of GABHS pharyngitis. Symptoms of GABHS pharyngitis can include sore throat, odynophagia, tonsillar exudates, tender cervical adenopathy, and fever (3,8,9,16). Alternatively, cough, conjunctivitis, coryza, diarrhea, and skin exanthem are more frequent with viral pharyngitis (8,9,16). Symptoms of GABHS pharyngitis typically resolve within 2–5 days, while viral infections last longer (3,8,9,16). Examination may reveal erythema and exudates along the posterior pharynx. Trismus, uvular deviation, and submental lymphadenopathy should be absent, and their presence suggests an alternate etiology (15,16,18). Cervical lymphadenopathy is commonly present in the anterior neck, and skin inspection may reveal a diffuse, erythematous rash. Suppurative complications can include sinusitis, acute otitis media (AOM), retropharyngeal abscess (RPA), and peritonsillar abscess (PTA), while nonsuppurative complications include acute rheumatic fever and glomerulonephritis (12–16,19).

Evaluation of patients with concern for GABHS pharyngitis includes consideration of other potentially dangerous conditions, followed by the use of risk stratification supplemented by further testing as needed. The Centor Criteria, developed in 1981, consists of four findings that are suggestive of GABHS infection (14,20,21). This tool allows for initial risk stratification of patients presenting with possible GABHS. McIsaac et al. adapted the score in 1998, adding age as the fifth component (22). The modified Centor criteria underwent subsequent validation in both 2000 and 2004 (Table 1) (23,24). Importantly, a score >4 points is associated with 51–53% likelihood of GABHS infection (12,20,23–27).

While most guidelines recommend that patients with primarily viral symptoms and score < 1 do not require further testing, recommendations vary with respect to higher scores (Table 2) (3,12,14,21). Both the Infectious Diseases Society of America (IDSA) and the American Heart Association/American Academy of Pediatrics guidelines recommend no empiric antibiotics on clinical scoring alone due to the risk of antibiotic overuse (12,15). The Centers for Disease Control and Prevention/American Academy of Family Physicians/American College of Physicians guidelines state that antibiotics can be considered empirically for patients with scores >3, while the European Society of Clinical Microbiology and Infectious Diseases guidelines recommend performing the rapid antigen detection test (RADT) for patients with scores >3 (13,14).

Several testing options are available. The most commonly used method is RADT, which can be performed using latex agglutination, enzyme immunoassay, or optical immunoassay techniques. Among the three options, the enzyme and optical immunoassay tests

Table 1. Modified Centor Criteria

Feature	Score
Fever	+1
No cough	+1
Anterior cervical lymphadenopathy	+1
Tonsillar exudate	+1
Age 3–14 y	1
Age 15–44 y	0
Age >44 y	–1
Score	Range for GABHS Infection Risk, %
0	1–2.5
1	5–10
2	11–17
3	28–35
>4	51–53

GABHS = Group A β -hemolytic Streptococcus.

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