Streptococcal Pharyngitis

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Preface

Streptococcal pharyngitis (ie, strep throat) is one of the most commonly diagnosed and treated diseases of childhood. About 7 to 10 million cases are diagnosed each year. The potential complications of untreated streptococcal pharyngitis, coupled with its ubiquitous and frequent presentation, make accurate diagnosis and appropriate management of this disease imperative.

Key Points

- Consider group A streptococcal (GAS) pharyngitis in a child >3 years of age who presents with fever, sore throat, and the absence of upper respiratory viral symptoms (eg, cough, rhinorrhea, hoarseness).
- Screen for GAS with a rapid strep antigen (RSA) test. Always follow up negative results with a confirmatory culture because most bedside tests are only 80% sensitive.
- Empiric therapy is not recommended; treat confirmed disease with penicillin or amoxicillin (first line), a first generation cephalosporin (second line), or an oral macrolide in patients allergic to penicillin or cephalosporin (see Table 2).
- Tonsillectomy for recurrent strep pharyngitis is not recommended except in severe cases or in patients with significant comorbidity (ie, sleep apnea).

Definition

- Streptococcal pharyngitis is an acute, pharyngotonsillitis caused by a common serotype of group A beta-hemolytic *Streptococcus*. Up to 30% of all pharyngitis cases are estimated to be bacterial, with most of those being GAS.

- School-aged children from ages 5 to 15 years are most commonly affected. Cases are often clustered within a community. Streptococcal pharyngitis is more likely to occur in winter and early spring but can be seen year round.
- The disease is spread via nasopharyngeal droplet contact.

Assessment

- The most typical findings for GAS at initial presentation are outlined in Table 1.
- The presence of viral symptoms, such as conjunctivitis, coryza, cough, diarrhea, hoarseness, stomatitis, or exanthema, all but exclude GAS as the underlying cause.
- Although rare, exposed infants and young children may present with symptoms more consistent with streptococcosis, including serous rhinitis, protracted illness, fever, and anorexia.

Table 1. Typical Initial Presentation of a Patient with GAS

To view a larger image on your device, please click or touch the image.

Table 1. Typical Initial Presentation of a Patient with GAS	
Initial Presentation	**Description**
Rapid onset of symptoms	• Pharyngitis • Fever • Headache • Abdominal complaints (including nausea, vomiting, or pain)
Absence of viral symptoms (eg, conjunctivitis, coryza, cough, diarrhea, hoarseness, stomatitis, or exanthema)	
Reported contact with a person who has streptococcal pharyngitis (sick contact)	
Physical examination findings	• Tonsillopharyngeal inflammation and/or exudates • Palatal petechiae • Strawberry tongue • Tender anterior cervical lymphadenopathy • Scarlatiniform rash (maculopapular, “sand papery”).

Diagnosis

- Empiric diagnosis is not recommended. Obtain a positive RSA or throat culture before

initiating treatment in children (See Figure 1).
- Specificity and sensitivity of RSA kits vary based on the manufacturer.
    - **Specificity.** Many demonstrate specificity of about 95% so are reliable positive indicators and need no verification.
    - **Sensitivity.** The sensitivity of some testing kits is as low as 70%. Therefore, confirm a negative test with a subsequent throat culture.
- The gold standard for diagnosis remains throat culture plated on sheep's blood agar.

Future Diagnostic Methods

- "Home testing" kits are being developed for strep throat. While these home kits use the same diagnostic methods as the RSA kits, they cannot distinguish between a carrier state and active strep infection. A careful medical history and physical examination are required for this diagnosis.
- Institutional-based polymerase chain reaction (PCR) testing shows a 96% sensitivity with 99% specificity, making it on par with the gold standard of culture. However, there is little comprehensive analysis of institutional variability, as well as limited community availability at this time to make it a viable alternative.
- Numerous other techniques exist or are in development for the diagnosis of GAS (eg, fluorescent in situ hybridization [FISH], enzyme-linked immunosorbent assay [ELISA], and other new, novel techniques). These techniques are not practical for clinical use because reliability has not been confirmed. Also they are too costly and not widely available.

Management

Manage suspected GAS pharyngitis as outlined in the Management of Streptococcal Pharyngitis Algorithm (Figure 1).

Antibiotic Selection

- For patients with confirmed GAS, treat with an appropriate antibiotic to eliminate the organism from the pharynx. Penicillin or amoxicillin is recommended as first choice because of narrow spectrum of activity, low incidence of adverse reactions, and low cost.
- For patients with allergies to penicillin, use a first generation cephalosporin (if patient is not allergic), clindamycin, or a macrolide antibiotic (Table 2).

Table 2. Antibiotic Selection for GAS

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Table 2. Antibiotic Selection for GAS

	Antibiotic	Dosing
First line		
	Penicillin V (oral)	• Child <27 kg: 400,000 units (250 mg) 3 times daily for 10 days • Child >27 kg: 800,000 units (500 mg) 3 times daily for 10 days
	Amoxicillin (oral)	All patients: 50 mg/kg (max 1000 to 1200 mg) once daily for 10 days
	Penicillin G (IM)	Child <27 kg: 600,000 units (375 mg) in a single dose Child >27 kg: 1.2 million units (750 mg) in a single dose
Second line		
	First generation cephalosporin such as cephalexin (Use caution in penicillin allergic patients because there is a 5% to 10% cross reactivity.)	All patients: 25 to 50 mg/kg/day divided every 12 hours; max dose 500 mg/dose
	Clindamycin (oral)	All patients: 10 mg/kg divided 3 times daily; max dose 1.8 gm/day
Third line (macrolide antibiotics)		
	Azithromycin (oral)	All patients: 12 mg/kg once daily for 5 days; max dose 500 mg

Referral

- Tonsillectomy is not indicated for the treatment of GAS or the treatment of recurrent GAS unless significant comorbidity is present.
- Current guidelines in otolaryngology recommend waiting until a patient has 7 documented occurrences within a calendar year before considering tonsillectomy. Even then, the provider should carefully weigh the risk versus the benefits. Considerations must be made for time spent away from school, complications of surgery, overall state of health, and financial burden.

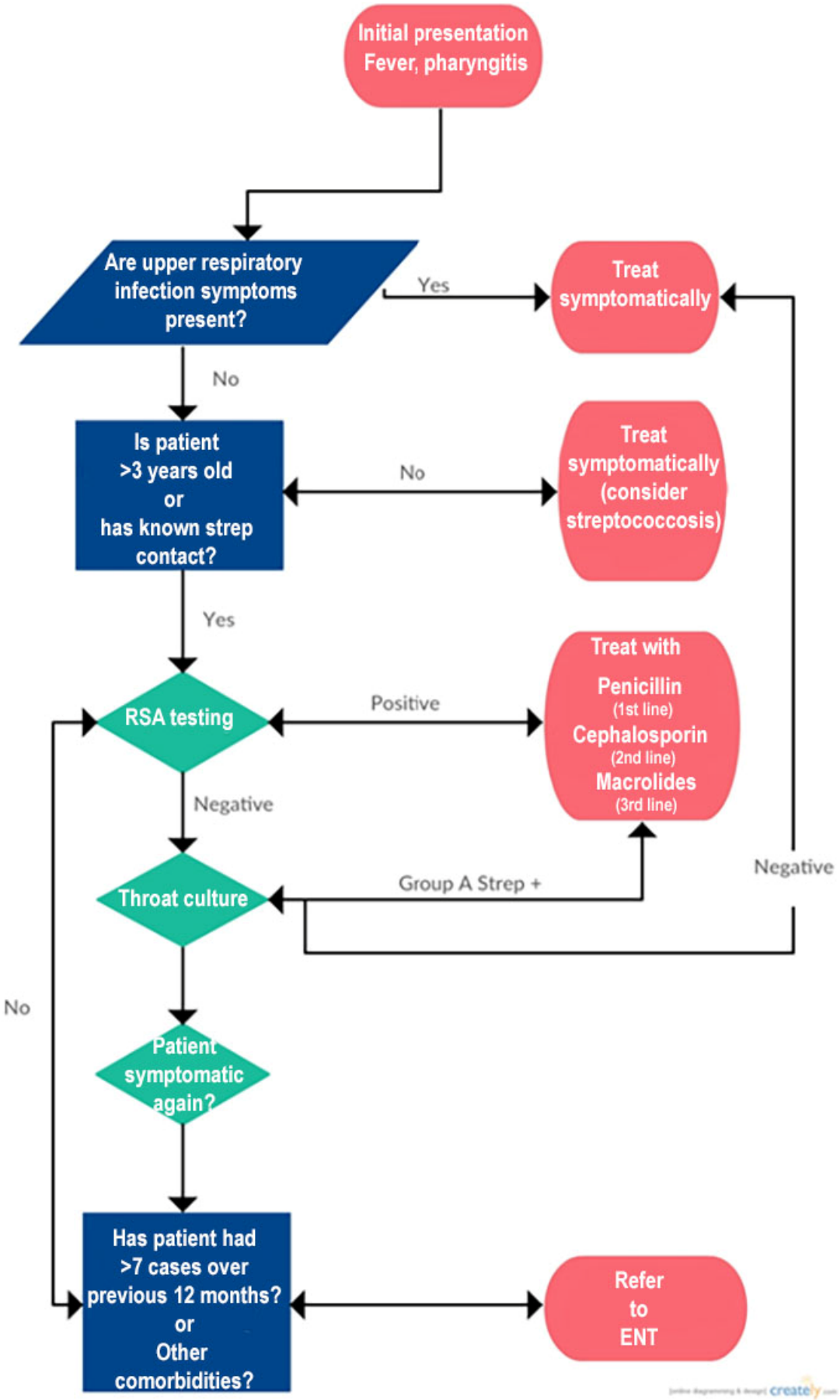
- Comorbidities to consider for referral include sleep disordered breathing and recurrent abscess formation.

Management of Streptococcal Pharyngitis Algorithm

Figure 1. Management of Streptococcal Pharyngitis Algorithm

To view a larger image on your device, please click or touch the image.

6.3 Management of Streptococcal Pharyngitis Algorithm



Prevention

- The incubation period for group A streptococcal pharyngitis is 5 to 10 days.
- Children should not return to school or have significant peer contact until 24 hours after the initiation of antimicrobial therapy to help prevent spread.
- Though reinoculation is unlikely, transmission to other toothbrushes or persons remains a risk. The following steps should be taken as preventive measures:
    - The patient's toothbrush should be replaced after 24 hours of antibiotic therapy.
    - Any oral devices should be thoroughly cleaned or sterilized.
    - The sharing of food or beverages should be discouraged by parents.

Resources

Group A Streptococcal (GAS) Disease (CDC website)

This guideline was developed to improve health care access in Arkansas and to aid health care providers in making decisions about appropriate patient care. The needs of the individual patient, resources available, and limitations unique to the institution or type of practice may warrant variations.

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