

Group A Streptococcal Pharyngitis

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Learning Objectives

Learner will be able to:

- Recognize and compare viral symptoms with four common bacterial signs and symptoms that are helpful in the diagnosis of Strep Pharyngitis
- State at least one first-line antibiotic treatment and one second-line antibiotic treatment for Strep Pharyngitis
- Understand how to discern whether a patient is a Strep Pharyngitis carrier
- List at least two ways in which advanced practice providers can help parents feel reassured when the diagnosis is viral there are no antibiotics prescribed.

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The Guidelines

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GAS Guidelines

Published by the Infectious Diseases Society of America in 2012

GAS is the cause of sore throat only 20-30% of the time in children, most common in ages 5-15

- Very unlikely in children age 3 and under - testing in this age group is not indicated

Signs/symptoms include:

- Painful swallowing/sore throat (sudden onset)
- Tonsillar exudates
- Swollen anterior cervical lymph nodes
- Fever



Shulman et al., 2012

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Video Introducing Group A Strep

<https://www.youtube.com/watch?v=8tk8-ZUDJk>



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Recommendations for **Diagnosis**

Do NOT test if signs/symptoms look viral

- Cough, oral ulcers, runny nose, diarrhea

Swab throat and test with Rapid Antigen Detection Test (RADT)

- If RADT is negative, conduct a culture to confirm
- RADTs are highly specific (95%)



Shulman et al., 2012

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Modified Centor Score

Viral vs Bacterial? --> Score!

2+ points = test

Use only in patients with recent onset (<3 days) acute pharyngitis.

When to Use	Pearls/Pitfalls	Why Use
Age	Group A streptococcus (GAS) rare under 3	3-14 years +1 15-44 years 0 >45 years -1
Exudate or swelling on tonsils		No 0 Yes +1
Tender/swollen anterior cervical lymph nodes		No 0 Yes +1
Temp >38°C (100.4°F)		No 0 Yes +1
Cough		Cough present 0 Cough absent +1

MDCalc, 2020

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Viral Causes

Most of the time, viruses are the cause of sore throat

- Respiratory syncytial virus
- Flu
- Rhinovirus
- Adenovirus
- Parainfluenza
- **Mononucleosis** (lymphadenopathy and splenomegaly)

Shulman et al., 2012

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Recommendations for Treatment (1st line)

Medication	Dosing	Frequency	Days of Therapy	Preparations	Potential side effects	Special Notes
Penicillin V	Children: 250mg Adolescents: 250mg to 500mg	Children: 2-3x/day Adolescents: 250mg 4x/day; OR 500mg 2x/day	10 days	Tablet suspension	-Nausea/vomiting -stomach upset -diarrhea	-works best if given on empty stomach
Amoxicillin	25-50 mg/kg/dose (max 1000mg/day)	2x/day for 25mg/kg 1x/day for 50mg/kg	10 days	Capsule Tablet Chewable tab Suspension	-rash -diarrhea	-generally well-tolerated and palatable -if given for a mono infection, patient can develop rash

Johns Hopkins ABX Guide, 2022; Shulman et al., 2012

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Recommendations for Treatment (2nd line)

Medication	Dosing	Frequency	Days of Therapy	Preparations	Potential Side effects	Special Notes
Cephalexin	20mg/kg/dose	2x/day	10 days	Tablet Capsule Suspension	-diarrhea -nausea/vomiting	-can increase metformin levels in body
Cefadroxil	30mg/kg/dose (max 1000mg/day)	1x/day	10 days	Capsule Tablet Suspension	-diarrhea -stomach upset	-suspension is palatable for kids
Clindamycin	7mg/kg/dose (max 300mg/dose)	3x/day	10 days	Capsule Solution	-GI intolerance -diarrhea -rash	-one of the most common abx to cause c.diff
Azithromycin	12mg/kg/dose day 1 (max 500mg/dose); then 6mg/kg/dose for remaining days (max 250mg/dose)	1x/day	5 days	Tablet Suspension	-diarrhea -GI intolerance -abdominal pain -dose-dependent hearing loss	-resistance to Group A Strep increasing

Johns Hopkins ABX Guide, 2022; Shulman et al., 2012

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Resistance to Treatment??

- There are concerns of penicillin-resistant GAS, but...

Resistance to penicillins (including amoxicillin) has never been found

- On the other hand, resistance to some other antibiotics, like clindamycin and azithromycin, can be present in certain areas.

CDC, 2018; DeMuri et al., 2017; Shulman et al., 2012; van Driel et al., 2021


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Which antibiotics NOT to use

There is NO evidence of penicillin-resistant GAS, so use it!

Antibiotics to be avoided include:

- Tetracyclines
- Sulfonamides
- Fluoroquinolones
- Also, no steroids!



Shulman et al., 2012

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Recommendations for at-home Management

- Antipyretics and analgesics (not Aspirin)
- Sprays or lozenges that include topical anesthetics
 - Ice pops
- Warm salt-water gargles

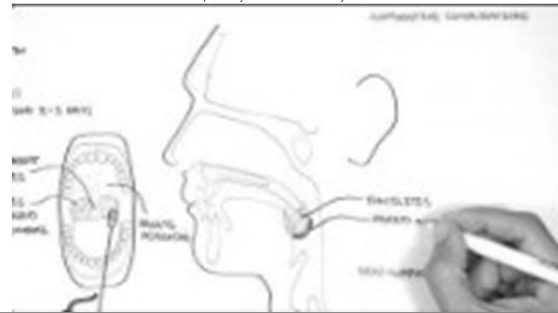


Shulman et al., 2012

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Video recapping symptoms, diagnosis, treatment, and complications

<https://www.youtube.com/watch?v=uv7yaBd5I>



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Antibiotic Use and Stewardship

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GAS and Common Myths



- You should start antibiotics until the throat culture returns, if the RADT is negative.
- Antibiotics will get rid of any sore throat
- If I have a sore throat and I have had strep in the past, it is probably strep again.
- It doesn't hurt to treat with an antibiotic just in case

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Use your resources!

- If unsure of etiology, utilize a scoring system
- Helps reduce unnecessary resource use (of RADTs and Cultures)
- It is important to utilize the diagnostic tests we have to guide antibiotic delivery
- RADTs and throat cultures are 90-95% specific

Shulman et al., 2012

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Recommendations for Repeat-Diagnoses

- Recurrent episodes of GAS pharyngitis may indicate the patient is a carrier
- Do not need testing or treatment, because they are very unlikely to spread to others or become sick with a complication of GAS.
 - 20% of children can be GAS carriers

Shulman et al., 2012

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What about those “carriers?”

With recurrent strep, think about the following:

- Are they utilizing the full antibiotic course each time?
- Have they been in close contact with another positive case?
- Do the symptoms appear to be more viral?



Shulman et al., 2012

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Effects of Treatment

It is important to consider the potential antibiotic treatment side effects as well

- Anaphylactic reactions
- diarrhea
- Altered gut flora
- nausea/vomiting
- Risk of patient not finishing entire course



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GAS and Common Myths



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Managing Family Expectations

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Family Expectations

Parents/guardians often *indirectly* ask for antibiotics

Perceived by providers as *expecting* antibiotics

Providers have been found to minimize viral diagnoses to support not using antibiotics

- Parents feel dissatisfied when this happens
- Parents want to know what to do to treat the issue, even if it doesn't include antibiotics.

Cabral et al., 2016; Mangione-Smith et al., 2015

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Family Expectations

Best outcomes for both parties when

- illness is recognized as needing treatment (regardless of the use of antibiotics)
- a contingency plan is made.

Providing positive AND negative treatment recommendations have been associated with decreased antibiotic prescriptions

- Positive: things parents can do to help their child feel better
- Negative: discussing how antibiotics were ruled out

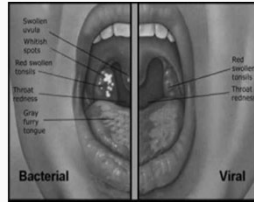
Cabral et al., 2016; Mangione-Smith et al., 2015

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Scenarios with Families

Parent: "I think he might have strep throat because he has white spots in his mouth."

- Response: your child does have white spots in his mouth, but those look like ulcers, which are very common with a virus. If it was strep throat (bacterial), the spots would more likely look like raised patches, and you might notice a bad smell coming from your child's breath.



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Scenarios with Families

Parent: "Are you sure my child does not have strep throat? Her teacher told me her classmate had it a couple days ago."

- Response: You are right that having contact with someone else who has the bacteria can increase the risk of your child getting it. However, we conducted a throat swab, which came back negative. Therefore, it is very unlikely your child has strep throat. Just in case, though, we will send it for a culture, and let you know if that comes back positive. If it does, we will prescribe antibiotics.

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Scenarios with Families

Parent: "Last time I was diagnosed with strep throat, my doctor gave me a different antibiotic and a steroid to take for 5 days. Should we do that for my daughter?"

- Response: Steroids really are not recommended for this treatment. To help with the discomfort, I would recommend children's tylenol or motrin, warm salt-water gargles, and some throat lozenge lolly-pops that you can get over-the-counter.

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Scenarios with Families

Parent: "Whenever my son gets a sore throat, I come to the doctor's and they swab him and the test comes back positive, so we get antibiotics. It happens all the time."

- Response: Many children are asymptomatic carriers of GAS, which means the bacteria has colonized or settled into your child's throat. This means that when he is swabbed, the test will pick up the bacteria. However, this does not mean your son actually is ill with strep throat, as long as he is not showing the more common bacterial signs of fever and pus on his tonsils.

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