

EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE



Care Warriors

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Streptococcal pharyngitis

A 9-year old female presented with a three day history of a fine rash. The non-pruritic rash began in the perioral region and axillae, spreading to the chest, neck and abdomen over the course of three days.

The patient had complained of a subjective fever, soar throat, and abdominal pain two days before the rash developed. These symptoms all resolved spontaneously. The mother of the patient denied cough, coryza, or diarrhea. No other siblings had developed a rash. The patient had not received any new medications.

All vital signs were within normal limits. On physical exam there was a fine blanching papular rash in the bilateral neck, axillae, and inguinal folds. The oropharynx was erythematous, no tonsillar hypertrophy or exudate were present, and there were no oral ulcers. The tongue was edematous and erythematous. There was enlargement and TTP of one submandibular node. All other findings on physical exam were normal. A rapid Strep test was positive.

When can patients return to school or work once diagnosed with Group A Strep pharyngitis with scarlet fever?

- A. Two days after initiation of antibiotics**
- B. Immediately if absence of pharyngeal erythema and exudates**
- C. When afebrile and after 24 hours of antibiotics**
- D. After 24 hours of antibiotics and resolution of rash.**
- E. Next morning if first dose of antibiotics was administered at least 12 hours prior**



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Child with fine "sandpaper" like rash of Scarlet Fever.



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Desquamation of the skin during resolution of rash.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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The correct answer is C. The accepted standard of care is to allow patients to return to school and work once the patient is afebrile and has received 24 hours of antibiotics. However, a recent study suggests that 12 hours after the first dose of antibiotics, 91% of children with culture confirmed GAS pharyngitis will have a negative rapid strep, making a next day return to school a possibility (Shwartz, 2015).

Introduction

Strep pyogenes, a beta hemolytic gram positive cocci, is the most common cause of bacterial pharyngitis. It accounts for 15-30% of cases in children and 5-10% of bacterial pharyngitis in adults. *Strep pyogenes* infection represents a spectrum of clinical entities that often poses a clinical dilemma in healthcare utilization and risk minimization.

Controversy in therapy:

The rationale for treating Strep A pharyngitis is historically threefold:

1. Reducing suppurative complications
2. Reducing non-suppurative complications
3. Reducing infectivity

However, recent research is calling into question the data supporting these tenets of therapy. 10 million cases of presumed Streptococcal pharyngitis are treated in the U.S. each year. The rate of severe allergic reaction to antibiotic therapy is 0.24%, putting 240,000 people at risk of respiratory complications.

In regards to reduction of suppurative complications, the two complications we attempt to prevent are otitis media and peritonsillar abscess.



WikiMedia Commons 2008
Streptococcal pharyngitis

Based on a Cochrane review by Del Mar CB et al, the number needed to treat (NNT) to prevent a peritonsillar abscess is between 50 and 225. The NNT treat to prevent one case of otitis media is greater than 200 cases. These complications are readily treatable, yet have a high NNT and put many at risk for allergic reactions and adverse drug effects.

For the reduction of non-suppurative complications, our goals are aimed at reducing the incidence of rheumatic fever and post-streptococcal glomerulonephritis. Epidemiologic data suggest that the incidence of streptococcal disease decreased before the development of antibiotics. The decrease in incidence coincided with public health improvements and may have altered the serotypes and virulence of GAS in the U.S. population is responsible for non-suppurative complications. Based on the current incidence of rheumatic fever in the US, we would need to treat about 2 million patients with strep throat in order to prevent a single case of rheumatic fever. These data and critiques do not apply to developing countries with poor public health systems, but have interesting implications for management of GAS pharyngitis in the US.

For a list of educational lectures, grand rounds, workshops, and didactics please visit BrowardER.com and **click** on the **"Conference"** link.

All are welcome to attend!

Warriors

Current Principles of Treatment

- Treatment of GAS is aimed at decreasing suppurative complications as well as the incidence of rheumatic fever and levels of infectivity.
- For pediatric patients with negative rapid testing, waiting 48 hour for culture data does not increase the incidence of rheumatic fever.
- First line therapy for GAS is a 10-day course of penicillin V 250 mg twice daily in children and 500 mg twice daily or 250 mg 4 times daily in adults.
- A single intramuscular injection of 1.2 million units of penicillin G can be given to patients who weigh greater than 27 kilograms. The dose is 600,000 units for those under 27 kilograms.
- For penicillin-allergic patients, therapy options include erythromycin, azithromycin, or a first generation cephalosporin in the non-anaphylactic population.

Red Flags

- Hot potato voice, toxic appearance, and uvular deviation should cause concern for extension into surrounding soft tissue and the formation of a peritonsillar abscess.
- Rash after initiation of amoxicillin should raise concern for the alternate diagnosis of mononucleosis.
- Clinical worsening of the patient with negative rapid antigen testing and negative cultures should raise alarm for Lemierre's syndrome from *Fusobacterium necrophorum*.

Take Home Points

- Most common clinical illness produced by Group A beta hemolytic streptococcus is acute tonsillopharyngitis.
- Exudative pharyngitis in children <3 years old is rarely of streptococcal origin and does not merit routine testing.
- Antibiotic therapy is targeted at reducing the incidence of rheumatic fever.
- Post-streptococcal glomerulonephritis is not prevented with treatment of Group A beta hemolytic streptococcus.
- Negative rapid strep testing in adults does not need to be followed up with culture.



ABOUT THE AUTHOR

This month's case was written by Chloe Edinger. Chloe is a 4th year medical student from FIU-HWCOM. She did her emergency medicine rotation at BHMC in September 2016. Chloe plans on pursuing a career in pediatrics after graduation.

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