METHODIST HEALTH SYSTEM
The Best Care Comes from the Heart

Microbiology Clinical Brief

Volume 1 Issue 1 August 1998

Laboratory Diagnosis of Pharyngitis/Strep Screen

The majority (80%) of cases of pharyngitis are caused by viruses, whereas 15-20% are caused by group A streptococci (*Strep. pyogenes)*. The remainder are caused by rare organisms, such as *Chlamydia pneumoniae, Mycoplasma pneumoniae, Arcanobacterium haemolyticum, Neisseria gonorrhoeae, Yersinia pestis, Yersinia enterocolitica,* and *Corynebacterium diphtheriae.*

Up to 33% of normal, healthy children are asymptomatic carriers of *Haemophilus influenzae* (usually non-typable) and *Streptococcus pneumoniae.* Another 10-20% of normal, healthy children are asymptomatic carriers of *Staphylococcus aureus.* Throat culture studies have shown no significant differences in the isolation rates of *H. influenzae, S. pneumoniae,* or *S. aureus* between asyptomatic children and children with upper respiratory infections. Except for the well-documented historic role of *H. influenzae* as a cause of acute epiglottitis, there is no scientific evidence that *H. influenzae. S. pneumoniae,* or *S. aureus* cause sore throat. Moreover, colonization of the pharynx with *S. aureus* and enteric bacilli increases after antibiotic therapy.

Nongroup A, β-hemolytic streptococci are present in 5-10% of normal, healthy children, as well as in those with upper respiratory infections. Although there is some circumstantial evidence that groups C and G β-hemolytic streptococci may cause pharyngitis, generally the illness is self-limited and requires no specific therapy. Bacteriologic examination of throat swabs is, therefore, limited to the identification of group A streptococci. A "general" culture for other bacteria will mostly yield indigenous flora, including *H. influenzae, S. pneumoniae, S. aureus,* and enteric bacilli, the treatment of which is not only inappropriate but may also contribute to the increasing antibiotic resistance of such organisms.

Group A streptococci may be detected by direct antigen testing, culture, or genetic probe. The sensitivity of antigen detection tests varies from 50-90%, depending on the population studied and the skill of the technician. For this reason, the American Heart Association and the Infectious Diseases Society of America have recommended that negative antigen detection tests be confirmed by culture. There is no evidence that patients with antigen-negative, culture-positive tests are simply carriers.

A "general" throat culture will not detect the other rare bacteria that can cause pharyngitis. Detecting these organisms requires special selective culture procedures and must be requested individually.

MIS Ordering Hints:

Rapid Strep Screen - antigen test; if negative followed by culture for Group A Strep
Strep Screen - culture used to identify Group A ß-hemolytic Strep
Throat culture, other - order must specify suspected pathogen

REFERENCES:

Gwaltney JM Jr., Pharyngitis. In: Mandell GL, Bennett JE, Dolin R editors. *Principles and Practice of Infectious Diseases,* 4th ed. New York: Churchill Livingstone, 1995:556-572.

Bartlett JG, IDCP Guidelines: Management of upper respiratory tract infections, Infect Dis Clin Pract, 6:212-220, 1996.

Bisna AL, Gerber MA, Gwaltney JM Jr., Kaplan EL, Schwartz RH, Diagnosis and management of group A streptococcal pharyngitis; a practice guideline, Clin Infect Dis, 25:574-583,1997.

SCIENTIFIC INFORMATION CONTACT: Nancy Cornish, M.D., Pathologist, Director of Microbiology (402) 354-4540