

## Q: What is the best way to diagnose streptococcal pharyngitis?

### JOHANNA GOLDFARB, MD

Head, Section of Infectious Diseases, Division of Pediatrics,  
The Cleveland Clinic

**A:** First, examine the throat. If there are signs of group A streptococcal pharyngitis (eg, redness, exudates, swollen lymph nodes, tenderness, possibly fever), then do a swab of the tonsils and posterior pharynx.

Throat culture is still the gold-standard test, but rapid tests can now be done in the office. Rapid tests cost about half as much as a culture and take only minutes to perform. They are highly specific when done with good technique (swab of the tonsils and posterior pharynx), but they are less sensitive than throat culture. Therefore, a negative rapid test in a patient with positive signs will still need to be confirmed by either a throat culture or a DNA probe test.

The DNA probe is newer and more accurate than the rapid tests, being extremely sensitive and specific. On the other hand, it requires a licensed laboratory and takes more preparation and time: several hours to 1 day, if the laboratory runs the test only once a day. The cost is comparable to that of culture.

#### ■ SIGNS ARE UNRELIABLE

Many studies show that clinical judgment is imperfect in differentiating streptococcal from viral pharyngitis. For example, Nawaz et al<sup>1</sup> recently found that, using throat culture as the gold standard, clinical findings (including adenopathy, tenderness, tonsillar exudate, and erythema) had a sensitivity and specificity of about 70% and a positive predictive value of only about 45%.

These numbers likely vary depending on the season and the age of the patients screened. During the late winter and spring, when streptococcal infections are frequent, the likelihood that a patient with pharyngitis

has streptococcal infection is higher than in the summer, when these infections are rare.

On the other hand, children and adults with symptoms of viral upper respiratory infection such as coryza, conjunctivitis, hoarseness, cough, or stomatitis likely do not have bacterial pharyngitis and do not need to be evaluated for group A streptococcal infection.

#### ■ WHY NOT TREAT EVERYONE?

Throat cultures are expensive and oral penicillin is cheap. To decrease the costs of health care, why not simply treat all patients who come to your office with a sore throat?

Indeed, treatment is beneficial. The major reason for treating streptococcal pharyngitis is to prevent rheumatic fever,<sup>2</sup> but treatment also shortens the course of the infection<sup>3,4</sup> and is important in preventing the spread of the infection. If we consider only the direct costs of care, it would be cheapest *not* to test for streptococcal infection at all, but simply to treat everyone.<sup>5</sup>

However, this strategy has considerable costs that are hard to calculate. By inappropriately treating viral infections, we would increase the prevalence of antibiotic resistance in the community and needlessly expose some patients to the risk of allergic reaction. This approach also would appear to be unacceptable on ethical grounds: a physician's first responsibility is to give his or her patient the best care possible.

#### ■ WHY NOT TEST EVERYONE?

On the other hand, testing everyone would not be cost-effective. Rather, we test patients who have a high likelihood of having streptococcal infection, keeping in mind the following caveats:

- It is not possible to reliably differentiate


We test patients likely to have streptococcal pharyngitis



viral from bacterial pharyngitis by examination.

- Streptococcal carriers will have false-positive results.
- It is preferable to err on the side of treatment, especially in children, who are at higher risk of contracting rheumatic fever than are adults.

**Whom to test:** Children older than 2 years and adults who have pharyngitis and signs of bacterial infection: eg, tonsillar erythema (often with exudate), palpable cervical lymph nodes, sometimes fever.

**Whom to consider not testing:** Children 2 years or younger or adults with pharyngitis and clear symptoms of upper respiratory infection, such as rhinitis, hoarseness, and erythema of the tonsils, but no exudate. 

#### ■ REFERENCES

1. Nawaz H, Smith DS, Mazhari R, Katch DL. Concordance of clinical findings and clinical judgment in the diagnosis of streptococcal pharyngitis. *Acad Emerg Med* 2000; 7:1104–1109.
2. Denny FW, Wannamaker LW, Brink WR, et al. Prevention of rheumatic fever. *JAMA* 1950; 143:151–153.
3. Randolph MF, Gerber MA, DeMeo KK, et al. The effect of antibiotic therapy on the clinical course of streptococcal pharyngitis. *J Pediatr* 1985; 106:870–875.
4. Krober MS, Bass JW, Michels GN. Streptococcal pharyngitis placebo-controlled double-blind evaluation of clinical response to penicillin therapy. *JAMA* 1985; 253:1271–1301.
5. Webb KH. Does culture confirmation of high-sensitivity rapid streptococcal tests make sense? A medical decision analysis. *Pediatrics* 1998; 101:e2. [www.pediatrics.org/cgi/content/full/101/2/e2](http://www.pediatrics.org/cgi/content/full/101/2/e2). Accessed 11/30/01.

.....  
*ADDRESS: Johanna Goldfarb, MD, Division of Pediatrics, A120, The Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, OH 44195; e-mail goldfaj@ccf.org.*