



Rational Laboratory for Etiology of Acute Tonsillopharyngitis

Akut Tonsillofarenjitte Etyolojik Tanıda Akılç Laboratuvar

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Question: Is a laboratory examination necessary in the differential diagnosis of acute tonsillopharyngitis?

Cite this article as: Hacımustafaoğlu M. Rational laboratory for etiology of acute tonsillopharyngitis. J Pediatr Inf 2018;12(3):e124-e125

Answer (Dr. Mustafa Hacımustafaoğlu)

In the differential diagnosis of acute tonsillopharyngitis; streptococci, especially group A streptococci, nonspecific viral tonsillopharyngitis, infectious mononucleosis, herpes simplex virus (HSV), and enteroviruses, adenoviruses may be seen. In addition, many microorganisms (viral such as influenza and RSV, and other bacteria such as chlamydia, mycoplasma, diphtheria, pertussis) may present like tonsillopharyngitis as a part of their typical disease tables. This question will focus on laboratory approaches especially to group A *Streptococcus* (GAS) tonsillopharyngitis viral tonsillopharyngitis and Epstein-Barr virus (EBV) tonsillopharyngitis which constitute a very important part of cases practically. It is useful that the physician who examines the patient knows that the history and clinical findings are very important and that a significant part of the cases may not require laboratory examination.

Group A beta-haemolytic *Streptococcus* tonsillopharyngitis is known as GAS, *Streptococcus pyogenes* and it is the most common cause of bacterial acute pharyngitis/tonsillitis/tonsillopharyngitis. In a meta-analysis in children, it was detected in

37% of children consulting with sore throat and so, it is found to be the most important factor after viral tonsillopharyngitis (95% CI 32-43%) (1). It is more common in the age group of five-15 and in school age. > In children aged 3 years, it progresses with typical acute fever, sore throat, headache, abdominal pain, nausea, vomiting, exudative tonsillopharyngitis on physical examination, petechiae on the palate, hyperaemic uvula, large reddened tonsils, large painful/sensitive anterior cervical lymphadenopathy, and red rash in some cases. The findings of GAS infection in children below three years are different. In these cases, it is generally seen with low fever (< 38.3°C), prolonged nasal discharge and nasal obstruction and anterior cervical adenopathy and this clinical table is called infantile streptococcosis (2). In a child with possible acute tonsillopharyngitis, it is important in terms of treatment and management whether the agent is bacterial (mainly VAS) or viral. The absence of findings supporting viral tonsillopharyngitis (conjunctivitis, colds, runny nose, cough, hoarseness, anterior stomatitis, diarrhea), the presence of the above-mentioned GAS tonsillopharyngitis findings especially in children aged 5-15 years and being in the winter and early spring season support the

Received: 29.11.2018

Accepted: 30.11.2018

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tonsillopharyngitis of GAS. Microbiological testing (such as rapid antigen diagnosis test or throat culture) is recommended in these cases which suggest clinically GAS tonsillopharyngitis. Microbiological testing (fast antigen or throat culture) is not recommended in the presence of findings that support clinically only viral tonsillopharyngitis (1,3,4). In addition, rapid antigen testing or culture in children younger than 3 years is generally not recommended. Rapid antigen testing usually results in less than 1 hour and when it is positive, culture is not necessary. However, in cases where the antigen is negative, culture is recommended if the diagnosis of GAS is strong, and even if the antigen is negative, the culture may be positive (5-10% probability).

It is also not recommended to perform routine blood tests for a patient with possible GAS tonsillopharyngitis. The leukocyte count may be normal or increased when done for another reason, the middle level of CRP may be observed. The ASO test has no meaning in acute diagnosis and is not requested. The ASO test is not expected to increase in acute infection or effectively treated acute infection. A high incidence of ASO suggests previous (1 month) and possibly untreated or inadequately treated GAS tonsillopharyngitis.

In summary, the test to be selected and performed in GAS tonsillopharyngitis is throat culture or rapid antigen diagnostic tests. Throat culture is the gold standard in GAS tonsillopharyngitis. The result is obtained in about one day, and in some cases the culture incubation may be extended to 48 hours. In the case of GAS reproduction, additional culture antibiogram is not required. Penicillin is the agent to be chosen in treatment and penicillin resistance has not been reported yet. When GAS reproduction is reported as a result of culture, treatment should be applied to prevent non-suppurative complications, even if the patient's clinical findings have improved. Throat culture should be taken properly for optimal results, both tonsil and pharynx swab should be taken and the tip of the swab should be removed without touching the mouth and tongue. Throat culture may also detect other rare pharyngitis agents except GAS (such as group C and group G *Streptococcus*, *Arcanobacterium haemolyticum*, *Fusobacterium necrophorum*, *Neisseria gonorrhoeae*). Their presence may be indicative of treatment. It is known that non-GAS group C and group G streptococcal tonsillopharyngitis are milder and generally do not cause acute rheumatic fever and post streptococcal glomerulonephritis complications.

Infectious mononucleosis: It is usually a clinical syndrome usually and classically seen in adolescents, usually caused by EBV and sometimes cytomegalovirus (CMV). Fever, pharyngitis, anterior and posterior cervical lymphadenopathy is a clinical table characterized by sometimes diffuse lymphadenopathy splenomegaly and sometimes hepatomegaly and periorbital/palpebral oedema. Tonsillopharyngitis is similar to GAS tonsillopharyngitis. However, it usually lasts longer, and does not respond to penicillin treatment. Rash may be seen with ampicillin and other similar antibiotics. Lymphocytosis on hemogram, increase in aminotransferase levels in blood tests, EBV-VCA-IgM positivity and CMV-IgM positivity due to cytomegalovirus may be observed. Rapid antigen test is negative, throat culture shows normal flora, and antibiotics are not given in treatment.

In the diagnosis of HSV (including herpetic gingivostomatitis), enteroviruses (such as herpangina, hand foot mouth syndrome), adenovirus (pharynx conjunctival fever) and other nonspecific viral infections, rapid antigen tests or culture, as well as nonspecific blood tests are not meaningful and also, they are not requested. Specific viral studies (such as PCR) are not requested if there is no epidemiological and explorative case. Diagnosis is based on clinical findings and treatment is directed accordingly, antibiotics are not administered.

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