Pharyngitis and Lassitude in a Previously Healthy Adolescent

For several days, a previously healthy 12-year-old girl has had a sore throat. She was given acetaminophen, which provided minimal relief. During the past 24 hours, she has been coughing because of throat discomfort and expectorates brackish phlegm. In addition, she has been very tired, sleeps much of the time, and has been intermittently febrile.

HISTORY
Her past medical history is unremarkable. However, when she was younger, she had frequent episodes of culture-proven streptococcal pharyngitis that responded well to penicillin.

PHYSICAL EXAMINATION
This adolescent appears somewhat ill. Temperature is 38.2°C (100.8°F); other vital signs are normal. Tonsils are markedly enlarged, inflamed, and covered with a brownish exudate. Tender 1- to 2-cm lymph nodes are palpable in her neck bilaterally. Chest and heart are normal. A soft spleen tip is readily palpable. No rashes are noted.

LABORATORY RESULTS
Hemoglobin level and platelet count are normal. White blood cell count is 10,500/µL with no bandemia and 60% lymphocytes. Biochemistry profile is normal.

Which of the following diagnostic tests is least appropriate in this setting?
A. A needle aspiration biopsy of one of the enlarged cervical lymph nodes.
B. A peripheral blood smear examination for the presence of “atypical” (reactive) lymphocytes.
C. Heterophile antibody (monospot) test.
D. Throat swab for streptococci and other microorganisms.
CORRECT ANSWER: A

This patient has a fever, pharyngitis, and cervical lymphadenopathy. Although the theoretical differential diagnosis is extensive and includes a variety of viral and bacterial infections, the findings here are most consistent with infectious mononucleosis. The presence of splenomegaly is very important. Most conditions associated with pharyngitis, with the exception of cytomegalovirus and HIV infections, do not manifest with this finding, whereas ultrasonography reveals splenomegaly in essentially all cases of infectious mononucleosis.

In many patients, the diagnosis of infectious mononucleosis can be made on clinical grounds. The classic triad of pharyngitis, fever, and lymphadenopathy in the appropriate age group (15 to 24 years is the most typical) strongly suggests the diagnosis.

Diagnostic testing. This patient has a history of streptococcal pharyngitis and remains in the highest incidence age group (5 to 15 years). Because a throat swab culture is easy and relatively inexpensive and therapy is similarly fairly easy and reduces infectivity and post-strep sequelae, choice D is reasonable here.

Choice A (lymph node biopsy) is not reasonable in this setting. Biopsy should be reserved for persistent lymphadenopathy (of more than 1 month’s duration), particularly if the nodes are larger than 2 cm or are in locations of concern, such as the supraclavicular areas. This patient’s illness is of brief duration, and all nodes are cervical and smaller than 2 cm.

In the setting of symptomatology so typical of infectious mononucleosis, any biopsy procedure should be deferred until the appropriate interval has elapsed (although on occasion small cervical adenopathy can persist past 1 month in infectious mononucleosis) or more ominous findings related to node size or location are seen. Further, because the most common neoplasms in patients younger than 40 years are lymphomas (in contrast to patients older than 40 years, in whom carcinomas are most common), the appropriate biopsy method is excisional rather than needle. Thus, choice A is unsuitable on a number of grounds and is by far the least appropriate diagnostic procedure offered here.

Choices B and C are tests that are frequently used to diagnose infectious mononucleosis. A lymphocytosis of more than 50% with atypical lymphocytes in excess of 10% on a peripheral blood smear (choice B) has a sensitivity of 75% and a specificity of 92% for the diagnosis. Antibody testing is also commonly used. Heterophile antibodies are IgM antibodies that react to a spectrum of antigens (eg, animal red blood cells), including viral Epstein-Barr (EB) virus antigens. The monospot test (choice C) can detect the presence of these antibodies, which arise usually by the second week of infection (thus, the test results can be negative very early in the course of the disease). In patients who have symptoms of infectious mononucleosis, a positive monospot test for heterophile IgM antibodies has a sensitivity of 85% and a specificity of 95% and is thus the most common test performed for the disease. Even more definitive antibody testing is available for specific IgM and IgG antibodies against EB viral capsid and nuclear antigen proteins, but such tests are reserved for difficult cases.

Outcome of this case. A peripheral blood smear examination revealed that the percentage of atypical lymphocytes was 20%. A monospot test was positive, while a throat swab showed normal flora. The patient’s condition slowly improved, and she was afebrile with resolving pharyngitis by week 2. She slowly regained her strength and returned to school by week 4. By week 6, all symptoms and signs, including the splenomegaly and lymphadenopathy, had resolved.

REFERENCES: