CLINICAL COMMENTARY

Presentations of Infectious Mononucleosis in Young Adults

Jennifer M. Chew, M.D., and Rumi R. Cader, M.D., MPH, FACP

Case Reports

We describe two young adults who presented to the outpatient clinic with acute infectious mononucleosis. Patient A was a 19-year-old male who attended a local university where he played midfield for the college soccer team. The patient had been evaluated by student health earlier in the week after presenting with a sore throat and feeling unusually tired. He was diagnosed with probable "strep throat" and given Penicillin VK. The patient took the medication for one week but did not feel any better. He noted worsening sore throat and fatigue. He was used to running miles on end as a student athlete but felt too tired to do this anymore. He had mild fevers and worsening throat pain. He complained of pain whenever he tried to swallow liquids or solids. He said that during first week of feeling ill he had fevers, which had now gone away. On exam, the patient was afebrile with normal vital signs. His oropharynx exam was significant for 3+ tonsils, which were erythematous and covered with exudate. His neck exam was significant for marked anterior cervical lymphadenopathy. Lungs were clear to auscultation. Heart exam revealed regular rate and rhythm with no rubs or murmurs. Abdominal exam was significant for a thin male with mild left upper quadrant tenderness to palpation and marked splenomegaly. His extremity and neurologic exam was completely normal. The patient was given a presumptive diagnosis of infectious mononucleosis and told to rest at home. He was advised not to take part in any contact sport, including soccer, for at least one month.

Laboratory findings for Patient A were significant for an AST of 306, ALT 570, alkaline phosphatase 298, and total bilirubin 1.8 with positive infectious mononucleosis antibody. Bacterial throat culture was negative for pathogenic streptococcus A bacteria. The patient was seen one week later, and he stated he felt much better. At this time, his oropharynx exam was normal. His anterior cervical lymphadenopathy was much improved. Abdominal exam revealed a non-tender abdomen with a mildly enlarged spleen. Lab values at this time showed an AST of 36, ALT 117, alkaline phosphatase of 207, and total bilirubin of 0.6. The patient returned to clinic two weeks after this asking for permission to play soccer. At this time, his anterior cervical lymphadenopathy had resolved, and his spleen could no longer be palpated on abdominal exam. His lab values had normalized with AST of 18, ALT 23, alkaline phosphatase 115, and total bilirubin 0.8.

Patient B was an 18-year-old female who presented with a two day history of subjective fevers, chills, and sore throat. She denied any abdominal pain but had vomited once that morning. She said her sore throat was mild, but she complained of "fullness" on the left side of her throat. She was taking acetaminophen and ibuprofen for fevers. On exam, the patient was afebrile but was tachycardic to 144 beats per minute. Her oropharynx exam was notable for dry mucus membranes and mild posterior pharynx erythema but was otherwise unremarkable. Her neck exam was notable for left posterior cervical chain lymphadenopathy and tenderness. Lungs were clear to auscultation. Heart examination was notable for tachycardia, but regular rhythm and no appreciable murmurs. Abdominal examination was unremarkable. Rapid streptococcus A testing in clinic was negative. She was given an empiric five day course of oseltamivir for presumed influenza treatment and was advised to increase fluid intake. Her laboratory findings were notable for an AST of 207, ALT 234, alkaline phosphatase 256, and total bilirubin 2.9. Other labs included a normal complete blood count and differential, negative bacterial throat culture, negative influenza A/B PCR, and negative infectious mononucleosis antibody. She was instructed to discontinue oseltamivir and was scheduled for a one week follow up for repeat infectious mononucleosis antibody testing. However, prior to her follow up appointment, she went to the Emergency Department for acute yellowing of the eyes. The Emergency Department exam was notable for scleral icterus, oropharyngeal exudates, splenomegaly, and right upper quadrant tenderness. Laboratory values during the Emergency Department visit were remarkable for elevated white blood cell count of 14.4 with elevated lymphocytes on differential, AST 131, ALT 182, alkaline phosphatase 292, and elevated total bilirubin at 3.9. Acute hepatitis panel, urine pregnancy test, gonorrhea, chlamydia, and HIV were negative. Infectious mononucleosis antibody was positive with positive Epstein-Barr virus (EBV) IgM, and serum EBV DNA quantitative PCR was detectable at 27. She was seen in clinic the following week with improvement of fevers and chills but had worsening tonsillar swelling and difficulty swallowing. Her examination showed 4+ tonsillar hypertrophy with exudate. Repeat rapid streptococcus A testing and throat culture remained negative. She was treated with prednisone 40 mg PO daily for three days but had little improvement of her sore throat. After three weeks, her symptoms resolved.

Epidemiology

Infectious mononucleosis is a clinical syndrome characterized by pharyngitis, fever, lymphadenopathy, and significant fatigue.[1] Laboratory abnormalities include lymphocytosis with at least 10 percent atypical lymphocytes, confirmed by positive serologic testing.[1] Complications, while rare, may include splenomegaly, hepatomegaly, jaundice and splenic rupture.[1] According to epidemiologic studies, over 95% of adults worldwide are infected with EBV.[2] Infectious mononucleosis has the highest incidence rate among adults 15 to 24 years old with about 500 cases per 100,000 persons per year.[2] Approximately 10-20% of college freshman become infected with EBV, and infectious mononucleosis develops in 30-50% of those. Infectious mononucleosis targets both sexes equally and has no seasonal predilection.[2]

Discussion

Patient A represents the classic presentation of a young adult with mononucleosis – fevers, sore throat, lymphadenopathy, splenomegaly, and liver enzyme abnormalities. It is crucial that patients do not continue to play contact sports due to the risk of splenic rupture. Although the risk of splenic rupture is estimated at 0.1% based on retrospective studies, splenomegaly itself is common in patients with infectious mononucleosis. Most cases of splenic rupture occur within the first three weeks of illness but can occur as late as seven weeks after diagnosis.[1,2] Therefore, it is prudent to counsel patients from refraining from contact sports for a minimum of three weeks following diagnosis of infectious mononucleosis.

When there is a strong clinical suspicion for infectious mononucleosis, the primary care practitioner should carefully consider the utilization of monospot testing and follow-up testing when indicated. The monospot test is a latex assay that causes hemagglutination between horse red blood cells and heterophile antibodies when present.[3] The monospot test typically has 87% sensitivity and 91% specificity.[1] However, the false negative incidence for monospot testing within the first two weeks is as high as 25% because heterophile antibodies do not peak until two to five weeks following the onset of symptoms.[3] Therefore, if initial monospot testing is negative and a strong clinical suspicion for infectious mononucleosis remains, clinicians should consider repeating monospot testing in five to seven days or sending EBV viral capsid antigen-IgG and viral capsid antigen-IgM.[3] As demonstrated in Patient B with the onset of scleral icterus, worsening pharyngitis and abnormal liver function tests in an otherwise healthy young woman, repeat monospot testing was warranted. According to some studies, elevated hepatic transaminase levels occur in up to one half of patients with infectious mononucleosis.[2] Interestingly, abnormal liver function tests were the first indication of infectious mononucleosis in Patient B. If repeat monospot testing is negative with lack of clinical improvement, the clinician should consider other mimickers of infectious mononucleosis such as acute human immunodeficiency syndrome, cytomegalovirus infection, or toxoplasmosis.

Routine use of corticosteroids in the treatment of uncomplicated infectious mononucleosis has not been well studied. A small, double-blinded, randomized trial looked at 40 children, ranging in ages 8-18 years, who had suspected infectious mononucleosis. The groups were randomized, and one group received a single oral dose of dexamethasone, and the other received a placebo. The corticosteroid group achieved significant pain relief within the first 12 hours but benefit was not maintained.[4] A Cochrane Review in 2006 examined seven trials to determine efficacy and safety of steroids for symptom control in infectious mononucleosis. Overall, there were no clear health benefits with steroid use. Two trials measured safety and found no major adverse effects from steroid use with infectious mononucleosis.[5] Patient B did not benefit from use of acetaminophen, non-steroidal anti-inflammatory drugs, or viscous lidocaine; her oral intake was minimal due to severity of sore throat. We decided to give her a short course of prednisone for symptomatic relief of sore throat, but similarly as seen in the literature, no sustained benefit was found.

Infectious mononucleosis is a relatively common disease of young adults. Clinical suspicion should be high for the young adult presenting with sore throat, lymphadenopathy, fevers, and splenomegaly. Testing for mononucleosis is important in that many of these patients are physically active, and if they have splenomegaly, they are at risk for splenic rupture in the acute setting. Both our patients did well over time. Patient A returned to college and rejoined his soccer team. Patient B took a little longer to recover but returned to her normal state of health after three weeks.

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