

## Infectious Mononucleosis: Pharyngitis and Morbilliform Rash

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**History of present illness:** A 20-year-old female on day nine of amoxicillin for a recent diagnosis of pharyngitis presented to the emergency department with a complaint of rash for two days. The patient's clinical course started two weeks prior and included fever, tonsillar exudates, and fatigue. Initial vitals were temperature of 37.6°C, blood pressure 122/82 mmHg, heart rate 135/minute, respiratory rate 18/minute, and oxygen saturation 100% on room air.

**Significant findings:** Her physical exam was significant for bilateral tonsillar exudates, cervical lymphadenopathy, and a morbilliform rash that included the palms (Figure 1-4). Laboratory testing was significant for white blood cell (WBC) count of  $16.5 \times 10^3/\text{mm}^3$  with an elevation in absolute lymphocytes of greater than  $10 \times 10^3/\text{mm}^3$ . The heterophile antibody test (monospot) and Epstein-Barr virus (EBV) panel were positive.

**Discussion:** Infectious mononucleosis (IM) is a clinical syndrome characterized by a triad of fever, tonsillar pharyngitis, and lymphadenopathy, and is most commonly associated with primary Epstein-Barr virus (EBV) infection.<sup>1,2</sup> The incidence of IM in the United States is 500 cases/100,000 person-years, with the highest incidence between ages 15 to 24 years.<sup>1</sup> EBV transmission occurs predominantly through exposure to infected saliva<sup>3</sup>, with an incubation period of 30 – 50 days.<sup>1</sup> The majority of patients with IM recover without apparent sequelae and most clinical and laboratory findings resolve by 1 month after diagnosis. Cervical adenopathy and fatigue may resolve more slowly ( $\geq 6$  months for fatigue).<sup>4,5</sup> IM may be associated with several acute complications including splenic rupture (0.5 – 1%) and airway obstruction (1%).<sup>6</sup> A morbilliform rash occurs in up to 95% of patients with IM who are treated with beta-lactam antibiotics for presumed group A streptococcal infection.<sup>1</sup> Diagnosis is typically made in the setting of the clinical syndrome combined with laboratory test to detect antibodies to certain EBV-associated antigens.<sup>7</sup> Primary EBV infection induces the activity of a heterogeneous group of circulating heterophile (IgM) antibodies directed against viral antigens that cross-react with antigens found on sheep and horse red cells. Rapid (monospot) tests for these heterophile antibodies are used to screen patients for infectious mononucleosis. In the presence of mononucleosis symptoms, a positive heterophile antibody tests has a sensitivity of approximately 85% and a specificity of approximately 94% for the diagnosis of infectious mononucleosis.<sup>1</sup> Management is primarily supportive and avoidance of sports for at least 3 weeks is generally recommended.

**Topics:** Infectious mononucleosis, pharyngitis, morbilliform rash.

#### References:

1. Luzuriaga K, Sullivan JL. Infectious mononucleosis. *N Engl J Med*. 2010 May 27;362(21):1993-2000. doi: 10.1056/NEJMcp1001116
2. Evans AS, Niederman JC, Cenabre LC, West B, Richards VA. A prospective evaluation of heterophile and Epstein-Barr virus-specific IgM antibody tests in clinical and subclinical infectious mononucleosis: specificity and sensitivity of the test and persistence of antibody. *J Infect Dis*. 1975;132(5):546-554.
3. Thorley-Lawson DA. Epstein-Barr virus: exploiting the immune system. *Nat Rev Immunol*. 2001;1(1):75-82. doi: 10.1038/35095584
4. Buchwald DS, Rea TD, Katon WJ, Russo JE, Ashley RL. Acute infectious mononucleosis: characteristics of patients who report failure to recover. *Am J Med*. 2000;109(7):531-537.

5. Rea TD, Russo JE, Katon W, Ashley RL, Buckwald DS. Prospective study of the natural history of infectious mononucleosis caused by Epstein-Barr virus. *J Am Board Fam Pract.* 2001;14(4):234-42.
6. Jenson HB. Acute complications of Epstein-Barr virus infectious mononucleosis. *Curr Opin Pediatr.* 2000;12(3):263-268.
7. Centers for Disease Control and Prevention, National Center for Infectious Diseases. Epstein-Barr virus and infectious mononucleosis. <https://www.cdc.gov/epstein-barr/laboratory-testing.html>. Accessed February 13, 2017.