

# EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER  
DEPARTMENT OF EMERGENCY MEDICINE



Care Warriors

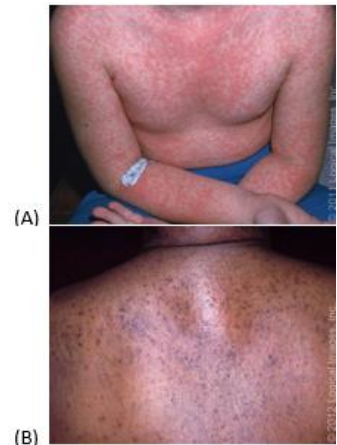
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## Infectious Mononucleosis

32 year old Caucasian presents to the ED with fever and a rash. Patient states the fever has been persistent for 5 days, Tmax 102, along with chills and malaise. The rash appeared 2 days after the fever, starting at the left shoulder, then spreading across the anterior chest and neck. Patient has a erythematous maculopapular rash, which was initially mildly pruritic, which resolved as the rash spread. Patient also a sore throat, cough and dysphagia with both solids and liquids in the past couple days. Of note, patient did present to Urgent Care where he received Tamiflu, however, he self-discontinued after 2 days since he felt worse. Patient confirms that he is up to date on his vaccinations; he also denies recent travel or sick contacts. Which of the following is the most appropriate initial test for this patient's condition?

- A. Rapid Group A Streptococcus
- B. HIV antigen-antibody
- C. Heterophile antibody test
- D. RPR
- E. No further testing is necessary, initiate supportive care
- F. A and C



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Morbilliform rash on chest.

A morbilliform rash, characterized by erythematous macules and papules, is commonly seen in Infectious Mononucleosis, an acute infection cause by EBV in children young adults.

(A) Morbilliform eruption on the chest, (B) Rash on the back on dark skin.

*EM Case of the Week is a weekly "pop quiz" for ED staff.*

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

**BROWARD HEALTH MEDICAL CENTER**

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The correct answer is F. Patient's rash is best described as a morbilliform eruption, and along with prolonged fever and sore throat, the most likely diagnosis is Infectious Mononucleosis caused by Epstein Barr Virus in a young adult sexually active male. It is beneficial to order a rapid Group A Streptococcus test since it presents similarly, albeit less likely in a patient with no recent sick contacts.

Patient's lab results showed severe neutropenia with a WBC of 1600. Patient's monospot, however, was negative. Patient was admitted and tested for HIV. Patient was negative for HIV antigen-antibody combo, however, he had a high viral load 3,257,992, and was thus considered in the window period. In addition, although the patient's monospot antibody test was negative, his EBV EBNA IgG and VCA IgG were both positive, indicating latent phase EBV infection.

#### Discussion

EBV is a herpes virus that is extremely common in the young adult population. It is spread through direct and intimate physical contact, as well as by asymptomatic patients who may shed the virus.

The best studied acute manifestation of EBV is Infectious Mononucleosis (IM). IM presents initially with headaches, malaise and fever. Then later the patients develops more specific signs of pharyngitis with tonsillar exudates that may appear white, gray-green or necrotic.

In cases where the heterophile antibody test is negative but the clinical suspicion is high, EBV specific antibodies can be tested. Epstein Barr nuclear antigen (EBNA) is one of the proteins produced during the latent phase. This in addition to a positive viral capsid antigen (VCA) IgG antibody may indicate a past infection, whereas a VCA IgM antibody indicates a recent infection.

#### Treatment

Patients with symptomatic IM should be treated with supportive care. NSAIDS and Acetaminophen may be used to relieve fever, malaise and throat discomfort. Adequate rest, nutrition and hydration are important.

The use of corticosteroids has not been recommended for IM administration. Corticosteroids may reduce the oropharyngeal shedding of the virus, however, have no significant impact on the duration of symptoms or recovery to return to school or work. Corticosteroids are also not recommended due to concerns with immunosuppression.

However, corticosteroids may be used in the treatment of airway obstruction that may develop as a complication of EBV. Patients with signs of impending airway obstruction (dyspnea when recumbent) may benefit from corticosteroids. Corticosteroids may also be beneficial in complications such as fulminant liver failure, severe hemolytic or aplastic anemia.

Acyclovir may suppress oral shedding in the short term, however, has not shown any significant benefits in the long term or in latent infections.

All athletes with IM should refrain from physical activity for 2 to 21 days after the development of IM, in order to avoid splenic rupture. Guidelines recommend 3 weeks before starting training for non-contact sports, and 4 weeks before contact sports.

For a list of educational lectures, grand rounds, workshops, and didactics please visit [BrowardER.com](http://BrowardER.com) and **click** on the **"Conference"** link.

*All are welcome to attend!*

## Antibody testing for EBV

VCA IgG	VCA IgM	EBNA	Interpretation
-	-	-	No recent infection
+	+	-	Recent infection
+	-	+	<b>Past infection</b>
+	-	-	Infection but unable to determine time
+	+	+	Past infection

Epstein-Barr virus Antibody profile, Serum. (2019). Mayo Clinic Laboratories

Most cases of IM are self-limited, and patients recover with full immunity (unless a concomitant HIV infection). Acute symptoms such as pharyngitis and headaches may resolve within 1-2 weeks with supportive care. However, fatigue may persist for 6 months or longer in some cases of EBV.

Of note, EBV infection is highly associated with Hodgkin Lymphoma, thus raising a high clinical suspicion for patients with a history of EBV who also present with hematologic abnormalities.

## Take Home Points

- IM caused by EBV is one of the more common causes of a morbilliform rash and fever in young adults.
- The diagnosis of EBV often involves testing for Heterophile antibody.
- In patients with a negative heterophile antibody test, but a high clinical suspicion, EBV-specific antibodies should be evaluated.
- Patients presenting with neutropenia should be tested for HIV.
- IM caused by EBV is best treated with supportive care, while corticosteroids may be used for life-threatening emergencies such as airway obstruction and fulminant liver failure.
- Patients with IM should be advised to avoid contact sports for minimum 4 weeks, and non-contact sports for minimum 3 weeks.



## ABOUT THE AUTHOR

This month's case was written by Mehak Bhatia. Mehak is a 4<sup>th</sup> year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in August 2019. Mehak plans on pursuing a career in Internal Medicine after graduation.

## REFERENCES

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