

COVID CONCEPT

Diffuse Maculopapular Eruption in a Patient with Lemierre's Syndrome

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ABSTRACT

Lemierre's syndrome is a potentially fatal septic thrombophlebitis of the internal jugular vein (IJV) requiring prompt diagnosis and treatment. In this report, we document a unique presentation of an EBV-associated morbilliform eruption coincident with the onset of Lemierre's syndrome. Furthermore, we argue that a diffuse maculopapular eruption in patients with Lemierre's syndrome should prompt workup for EBV infection.

CASE REPORT

A 26-year-old woman, penicillin allergic, presented to the emergency department with 5-days of fever, sore throat, and worsening axillary and groin rash. Prior to admission, the patient was prescribed azithromycin at an urgent care center for presumed scarlet fever with streptococcal pharyngitis despite negative rapid strep testing.

Examination revealed erythematous papules, patches and plaques involving face, trunk, and extremities, extending onto hands and feet (**Figure 1**). Mucosa was normal. There was no lymphadenopathy. White blood cell count was elevated ($21.4 \times 10^9/L$) with eosinophilia ($1.8 \times 10^9/L$) and elevated AST (181 U/L) and ALT (654 U/L). Hepatitis panel was negative.

The following day, the eruption worsened with increased erythema and confluence over palms and wrists. The patient became unarousable, tachycardic, hypotensive, and

hypoxic. Blood cultures grew gram-negative rods. Empiric cefepime and vancomycin were started. Admission respiratory pathogen panel, HIV and heterophile antibody tests, and throat culture for Group A streptococcus resulted negative.

Further decompensation required transfer to the ICU. Chest CT revealed septic emboli with pulmonary cavitations (**Figure 2A**). Doppler ultrasound confirmed a non-occlusive thrombus of the left superficial IJV (**Figure 2B**).

Blood cultures grew *Fusobacterium necrophorum*. Notably, the patient's EBV IgM and IgG antibodies were positive. This constellation of findings confirmed the diagnosis of Lemierre's syndrome. The patient received 6 weeks of ceftriaxone and metronidazole with improvement.

DISCUSSION

January 2024 Volume 8 Issue 1

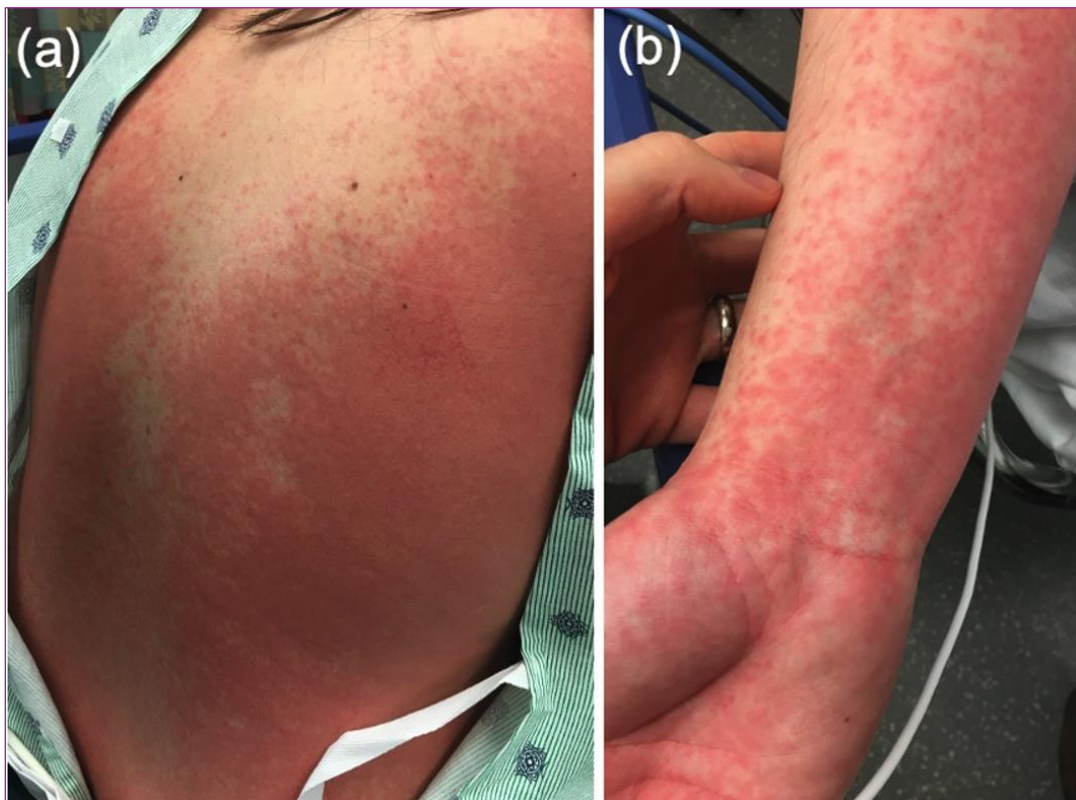


Figure 1. Erythematous papules, patches and plaques coalesced over the patient's trunk (A) and extremities (B).

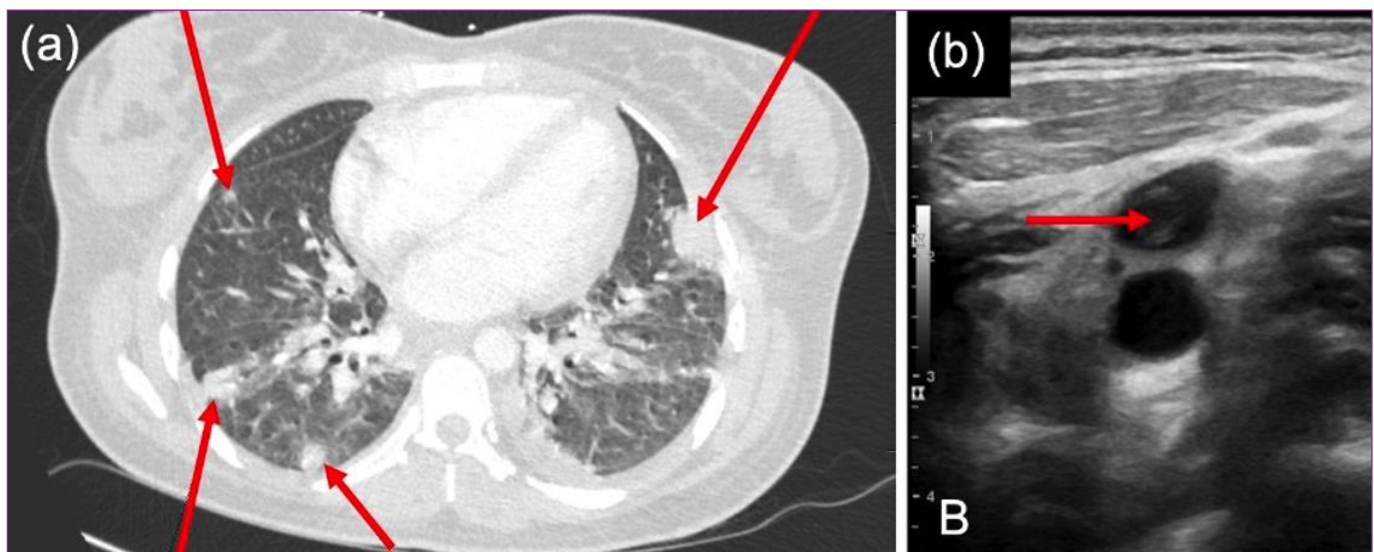


Figure 2. (A) As indicated by the arrows, chest CT revealed multiple septic emboli. (B) Doppler ultrasound of the neck revealed a non-occlusive thrombus of the left superficial internal jugular vein (IJV), as indicated by the arrow.

Highly sensitive and specific, positive IgM EBV serology confirmed an acute EBV

infection. In this case, heterophile antibody testing was negative. Although quick and

January 2024 Volume 8 Issue 1

cost-effective in diagnosis, the heterophile test is less sensitive and specific than serologic testing, and may produce false negative results as occurred with this patient.¹

Initial differential diagnosis for this patient's maculopapular eruption included a viral exanthem, in this case ultimately attributed to acute EBV infection. While EBV-associated rash typically presents when infectious mononucleosis is improperly treated with a penicillin, an exanthem has been reported in 5-15% of patients in the absence of antibiotic use.² Given eosinophilia and transaminitis, drug rash with eosinophilia and systemic symptoms (DRESS) syndrome was also considered. However, the lack of new or chronic medications prior to disease onset precluded this diagnosis.³

Thrombus of the left superficial IJV, septic emboli manifesting as pulmonary cavitations, and blood cultures positive for *F. necrophorum* confirmed the diagnosis of Lemierre's syndrome. The disease classically affects young, healthy adults, and is characterized by recent oropharyngeal infection, in this case attributed to EBV, and involvement of anaerobic pathogens, mainly *F. necrophorum*. Extension of peritonsillar bacterial infection into the tonsillar vein is felt to precipitate IJV thrombosis. Septic emboli can subsequently metastasize to lungs, liver, joints, or brain.⁴

Approximately 20 cases of EBV-associated Lemierre's syndrome have been reported. Potential factors whereby EBV infection may predispose to invasive *F. necrophorum* infection include lymphatic obstruction and impaired production and function of secretory immunoglobulins.⁵ To our knowledge, no previous reports document the viral exanthem of acute EBV infection heralding onset of Lemierre's syndrome. In the case of

Lemierre's syndrome, typically presenting as pharyngitis, neck pain, and persistently high fever, a precedent or concurrent morbilliform eruption should prompt a work-up for EBV infection. Falsely attributing the morbilliform eruption to a medication may confound and delay diagnosis. Delaying appropriate antibiotic coverage and surgical drainage of any associated abscess may result in hematogenous spread of infection with severe complications, including septic shock and death.⁶

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