

## Case Report

# Mediastinitis as a complication of Epstein-Barr virus infection: a rare entity

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### ABSTRACT

Epstein-Barr virus (EBV) is a member of the herpes virus family that can infect humans. Common manifestations of Epstein-Barr virus infection include fever, lymphadenopathy and pharyngitis with some rare complications including mediastinitis, myocarditis, pancreatitis, acute kidney failure and neurological disorders. Clinical findings along with serological evidences are needed to diagnose the infection. Early investigation for EBV in febrile patients can expedite both diagnosis and treatment.

**Keywords:** Mediastinitis, EBV, Emphysema, Peri-tonsillar abscess

### INTRODUCTION

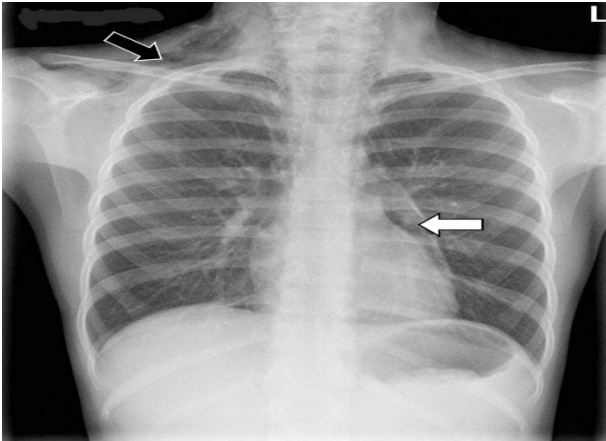
Common manifestations of Epstein-Barr virus (EBV) infection include fever, lymphadenopathy and pharyngitis. The vast majority of cases are self-limiting with an excellent prognosis, but in rare cases acute complications such as splenic rupture, hepatitis and severe tonsil enlargement with airway obstruction are encountered.<sup>1</sup> Our case reports mediastinitis as a very rare complication of EBV infection. Very few articles have reported this entity.

### CASE REPORT

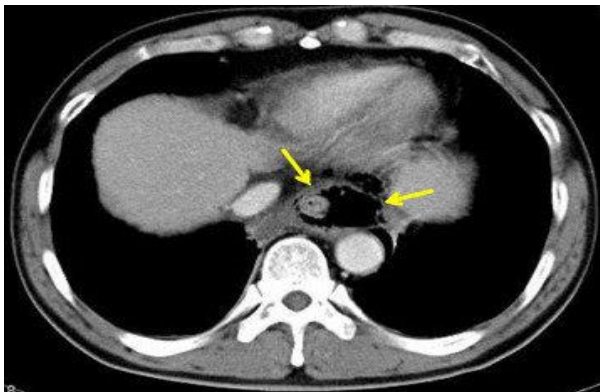
A previously healthy 40-year old male was referred to the emergency department by his general physician. He presented with complaints of fever and a sore throat for 2 to 3 weeks and was diagnosed with an EBV infection. The diagnosis was made on the basis of positive immunoglobulin M (IgM) anti-viral capsid antigen (anti-VCA), positive immunoglobulin G (IgG) anti-VCA, and negative anti-EBV nuclear antigen. Now, he presented with new onset sub-sternal chest pain and dysphagia. On physical examination, the blood pressure was normal

(225/82 mm Hg), tachycardia (118 beats per minute i.e. bpm), and a high respiratory rate (35 to 40/min). At inspection, the tonsils were enlarged with white exudate and mild erythema was present. His throat was swollen and painful at palpation. Laboratory investigations showed leukocytosis ( $11.8 \times 10^9/l$ ), elevated C-reactive protein (CRP) (331 mg/l), and elevated liver enzymes (aspartate transaminase i.e. AST 158 U/l; and alanine aminotransferase i.e. ALT 262 U/l).

The chest X-ray showed cervical and mediastinal emphysema (Figure 1). Peripheral blood smear showed atypical lymphocytes. A computed tomography (CT) scan of the thorax and of the neck also showed cervical and mediastinal emphysema along with mediastinitis, and a peritonsillar abscess (Figure 2). The diagnosis of mediastinitis as a complication of a peritonsillar abscess was made. The patient was intubated and admitted to the intensive care unit. Antibiotic therapy including amoxicillin-clavulanate, clindamycin and metronidazole was initiated. Furthermore, the patient underwent surgical debridement of the neck and mediastinum. Pleuritic empyema and multiple abscesses were drained. The patient was discharged 5 days post-operatively.



**Figure 1: Chest x-ray showing cervical emphysema (black arrow) and mediastinal emphysema (white arrow).**



**Figure 2: CT scan thorax showing cervical and mediastinal emphysema along with mediastinitis, and a peritonsillar abscess.**

## DISCUSSION

EBV is a common disease with a seroprevalence in adulthood of more than 90%. If patients are symptomatic the most common complaints are fever, sore throat, fatigue and enlarged lymph nodes. In limited cases, complications can arise, including rupture of the spleen, myocarditis, pancreatitis, acute kidney failure, or neurological disorders.<sup>2</sup>

In 2002, Adrianakis et al reported a same case in a 17 years old female and proposed two mechanisms for the pathophysiology of mediastinitis in EBV infection.<sup>3</sup> Either mechanism can only occur when a peritonsillar abscess is

already present. The first mechanism is a breakthrough of the abscess through the space between the alar and prevertebral space and the second is through septic thrombophlebitis. CT scans in our case did not show thrombophlebitis, which would lead us to believe that a breakthrough of a peritonsillar abscess between the alar and the prevertebral space was the mechanism that occurred in our patient. Kristensen and Prag speculated that a transient decrease in the T cell-mediated immunity caused by EBV infection may predispose to a bacterial superinfection.<sup>4</sup> If EBV infection leads to immunosuppression, one can speculate that EBV infection could be a step in the pathway that leads to these life-threatening presentations. Descending mediastinitis is a complication of EBV infection, which can take a fulminant course, even in previously healthy young individuals.

## CONCLUSION

EBV is a common disease with mild presentation but can lead to complications like myocarditis, pancreatitis, acute kidney failure, or neurological disorders. Early recognition and treatment are vital for a full recovery.

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## REFERENCES

1. Glynn FJ, Mackle T, Kinsella J. Upper airway obstruction in infectious mononucleosis. *Eur J Emerg Med.* 2007;14(1):41-2.
2. Bennett JE, Dolin R, Blaser MJ. Mandell, Douglas, and Bennett's principles and practices of infectious diseases, 8th ed. Churchill Livingstone, Philadelphia, PA. 2015.
3. Andrianakis IA, Kotanidou AN, Pitaridis MT, Saroglou GJ, Exarhos DN, Roussos CS, Bellenis IP. Life-threatening bilateral empyema and mediastinitis complicating infectious mononucleosis. *Intensive Care Med.* 2002;28:663-4.
4. Kristensen LH, Prag J. Human necrobacillosis, with emphasis on Lemierre's syndrome. *Clin Infect Dis.* 2000;31:524-32.

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