

Case Report

Bicytopenia and Abnormal Coagulation Profile in a Child with Influenza B: A Rare Case Report

Muhammad Naveed Ashraf¹, Sania Ishtiaq Khan¹ and John Twomey¹

1. Department of Paediatrics, University Hospital Limerick, Limerick, Ireland

Abstract:

Background: Influenza B is a contagious respiratory illness that typically presents with acute febrile and respiratory symptoms. Hematologic abnormalities such as bicytopenia and coagulation disturbances are uncommon and may lead to diagnostic uncertainty.

Case Presentation: We report a pediatric case of influenza B presenting with epistaxis, bicytopenia, and an abnormal coagulation profile during an outbreak. Laboratory evaluation revealed leukopenia, thrombocytopenia, and prolonged coagulation parameters. The diagnosis of influenza B was confirmed by nasopharyngeal swab polymerase chain reaction (PCR) testing. The patient was treated with oral oseltamivir, intravenous (IV) fluids, and paracetamol (acetaminophen). Clinical condition and laboratory abnormalities improved rapidly following antiviral therapy.

Conclusion: Influenza B may present with transient hematologic abnormalities and coagulation disturbances, which can mimic more serious conditions. Awareness of such atypical presentations is essential to avoid unnecessary investigations, hospital admissions, and inappropriate antibiotic use. Further studies are needed to better characterize the hematologic spectrum associated with influenza B infection.

Keywords: Bicytopenia; Abnormal coagulation profile; Child; Influenza B

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Corresponding Author: Muhammad Naveed Ashraf. Email: navijee73@yahoo.com

Introduction

Influenza is a common viral respiratory illness that affects millions of children worldwide each year. Most pediatric cases follow a self-limiting course characterized by fever, malaise, and respiratory symptoms.¹ Influenza can occasionally present with atypical hematologic abnormalities. Influenza B, in particular, has been associated with leukopenia and thrombocytopenia more frequently than influenza A, but significant coagulation disturbances or bleeding manifestations are rarely reported.^{2,3} Such presentations may mimic more serious conditions, including hematologic malignancies, aplastic anemia, or disseminated intravascular coagulation, leading to diagnostic uncertainty and potentially unnecessary investigations.

We describe a pediatric case of influenza B presenting with epistaxis, bicytopenia, and an abnormal coagulation profile, an unusual constellation of findings that resolved rapidly with antiviral therapy. This case emphasizes the

significance of recognizing the broader hematologic spectrum of influenza B to avoid misdiagnosis and guide appropriate management.

Case Presentation

A 7-year-8-month-old boy arrived in the emergency department with a one-day history of vomiting, epistaxis, and a high-grade fever of up to 40°C. On examination, he appeared pale, with a blood spot in one nostril and a hyperemic oropharynx. There was no history of loss of smell or taste. No active bleeding, petechiae, bruising, lymphadenopathy, or hepatosplenomegaly were noted on examination.

He was brought in because of an unusual blood report. The complete blood count, along with the coagulation profile, is shown in Table 1. Liver and kidney function tests were normal, and C-reactive protein (CRP) was 1 mg/dL. Nasopharyngeal swab PCR was positive for influenza B and negative for parvovirus B19 and

COVID-19, and Epstein-Barr virus (EBV) serology was negative.

Table 1: Complete blood count and coagulation profile before treatment, 24 hours after treatment, and 2 weeks after treatment

Test	Before treatment	24 hours after treatment	2 weeks after treatment
WBC ($\times 10^9/L$)	2.51	4.02	5.98
Neutrophils ($\times 10^9/L$)	0.94	1.35	2.31
Lymphocytes ($\times 10^9/L$)	1.20	2.18	3.00
Hb (g/dL)	12.4	10.8	11.2
PLT ($\times 10^9/L$)	127	105	333
PT (seconds)	18.4	13.3	14.5
aPTT (seconds)	45	30	39
INR	1.4	1.0	1.0

WBC = white blood cell count; Hb = hemoglobin; PLT = platelet count; PT = prothrombin time; aPTT = activated partial thromboplastin time; INR = international normalized ratio.

He was managed with oral oseltamivir 45 mg twice daily, paracetamol (acetaminophen) 325 mg as needed every 4 to 6 hours, and IV fluids (Normal saline (NS) + 5% dextrose water (D5W)) as maintenance fluids until good oral intake was achieved. Repeat lab workup after 24 hours is shown in Table 1. No further bleeding episodes were noted during his stay. He was discharged home on oral oseltamivir 45 mg twice daily for a total of 5 days. Follow-up blood tests at 2 weeks were normal (Table 1).

Discussion

Influenza is a contagious respiratory disease caused by the influenza virus. Typical uncomplicated influenza symptoms appear abruptly after a 1-2-day incubation period. Initially, systemic symptoms predominate, including fever, chills, headache, myalgia, malaise, and/or anorexia. These general symptoms normally last three days, after which only respiratory symptoms predominate.¹

In our patient, there was no history of loss of smell or taste. No active bleeding, petechiae, and bruising could be seen on examination. These findings made dengue and COVID-19 less likely.

Routine laboratory findings, like the majority of viral infections, are non-specific. Type A, one of the three primary subtypes of influenza, is more closely associated with pandemic transmission

and severity, as seen with influenza A subtype H1N1 (swine flu). Influenza B is more likely to produce leukopenia and thrombocytopenia than influenza A.^{2,3} Coagulation problems are frequent in COVID-19 and correlate with illness severity. With the onset of a viral disease, an inflammatory response disrupts the balance between procoagulant and anticoagulant mechanisms, with endothelial dysfunction playing a major role.⁴

Moreover, distinct mechanisms of bone marrow suppression have been identified for different viruses.⁵ Leukopenia is commonly noted in influenza B.⁶ Mild thrombocytopenia is a common finding with influenza, more common with type B than with A.^{6,7} A murine study demonstrated that cytokine-mediated apoptosis results in leukopenia; however, the mechanism causing thrombocytopenia remains unclear.⁸ Our patient demonstrated a transient decrease in hemoglobin levels post-treatment, which may reflect early bone marrow response or hemodilution following intravenous fluid administration.

Influenza B with bicytopenia has been reported in the literature before. Ranka et al published a case report on the subject. However, their case was a self-medicating physician without any epistaxis. Nasopharyngeal swab PCR was positive for influenza B, and there was improvement after oral oseltamivir 75 mg twice daily for 5 days.⁸ In contrast, our patient was a child who presented with epistaxis.

Epistaxis and an abnormal coagulation profile are uncommon presentations of influenza B. The antiviral oseltamivir is clinically effective against both types of influenza.⁹ Newer evidence suggests that coagulopathies may contribute to a severe response by the immune system in influenza. This may lead to activation of lung endothelium, vascular leakage, disseminated intravascular coagulation, and formation of microemboli in the pulmonary system.¹⁰

Conclusion

This case illustrates an unusual presentation of influenza B with epistaxis, bicytopenia, and aberrant coagulation, a rare picture of a common illness. The practicing clinician must be aware of these abnormalities associated with influenza B. Awareness of these findings may reduce hospital admissions, unnecessary investigations, and inappropriate antibiotic use. Future research

should explore the association of hematological changes with influenza B infection.

Declarations

Conflict of interest: None

Patient Consent: Written informed consent was obtained from the patient's guardian for publication of this case report.

Ethical Approval: Ethical approval was not required for this single case report as per institutional policy.

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Data Availability: Data supporting the findings are available from the corresponding author upon reasonable request.

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