



HUMAN BOCAVIRUS – A CASE REPORT WITH THREE RELATIVE CHILDREN

BY

Hatice Zeynep Terzi¹, Muhammet Furkan Korkmaz¹, Arzu Oto²

¹ Department of Pediatrics, University of Health Sciences, Bursa Faculty of Medicine, City Training and Research Hospital, Bursa, Turkey

² Department of Pediatric Child Care Unit, University of Health Sciences, Bursa Faculty of Medicine, City Training and Research Hospital, Bursa, Turkey

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Dear Editor,

Acute lower respiratory tract infections (ALRTIs) are the leading causes of hospitalization and mortality in children. With advancing technology, new respiratory pathogens are being identified in addition to known ones. One such pathogen is Human Bocavirus (HBoV), and its exact role as a respiratory pathogen has not been fully elucidated, but it is believed to be responsible for some cases of bronchiolitis, especially in children (Allander et al, 2007). HBoV can manifest with clinical symptoms such as fever, cough, shortness of breath, common cold, rhinitis, diarrhea, and vomiting, among others (Christensen et al, 2019). In recent years, the frequency of isolation, particularly in ALRTI cases in children under 5 years old, has been increasing (Endo et al, 2007). With this letter, we aim to present two cases with a family relationship, followed in our clinic and pediatric intensive care unit (PICU) due to ALRTI, both of whom tested positive for HBoV by Polymerase Chain Reaction (PCR) in the respiratory viral panel.

A three-year-old male patient presented to our emergency department with sudden onset respiratory distress, cough, and wheezing. The patient had no previous similar complaints, known systemic diseases, or allergy history in his family background. On physical examination, bilateral rhonchi and prolonged expiration were auscultated in lung sounds. The patient appeared moderately ill and agitated, with a low respiratory rate and decreased oxygen saturations, leading to admission to the PICU. Arterial blood gas analysis revealed a pH of 7.14, pO₂ of 22.5 mm Hg, pCO₂ of 68 mm Hg, HCO₃ of 23 mmol/L, and lactate of 1.2 mmol/L. Laboratory investigations showed a hemoglobin level of 13 g/dL, white blood cell count of 11,860/mm³, normal liver and kidney function tests, and a C-reactive protein level of 16 mg/L. The chest X-ray of the patient showed findings consistent with viral lower respiratory tract infection (Figure 1). The patient was admitted to the PICU with a diagnosis of ALRTI and was closely monitored. During the day, it was learned that a 3-

year-old child, a cousin of the patient, was being followed in a PICU in another city, and another child with a familial relationship was scheduled to be brought to our pediatric emergency department. The patient, monitored for three days with conservative supportive treatments and high-flow nasal oxygen therapy, was followed for an additional two days in the PICU with nasal oxygen support. The patient, who tested positive for HBoV PCR in the respiratory viral panel during intensive care admission, was observed for one more day without oxygen support in the ward and then discharged.

In our other case, a one-year-old male patient presented to our pediatric emergency department with a three-day history of productive cough and fever. On physical examination, inspection of lung sounds revealed substernal and intercostal retractions, as well as bilateral rales and rhonchi upon auscultation. The patient appeared moderately ill, with an open consciousness and agitation. The patient's presentation included elevated temperature, tachycardia, hypoxia, and an increased respiratory rate. Arterial blood gas analysis showed a pH of 7.27, pO₂ of 47 mm Hg, pCO₂ of 48.3 mm Hg, and HCO₃ of 22.2 mmol/L. Laboratory investigations indicated a hemoglobin level of 11.8 g/dL, white blood cell count of 20,910/mm³, normal liver and kidney function tests, and a C-reactive protein level of 15 mg/L. The chest X-ray of the patient revealed bilateral perihilar infiltrations (Figure 2). The patient was admitted to the PICU with a diagnosis of ALRTI and closely monitored. HBoV was isolated in the respiratory viral panel. The patient was observed for two days with continuous positive airway pressure through nasal prongs, and due to persistent respiratory distress, high-flow nasal oxygen therapy was initiated. The patient was followed for an additional three days in the PICU with nasal oxygen support and was then transferred to the ward. The patient was monitored for two days without oxygen support and subsequently discharged.

Human Bocavirus, first identified on September 6, 2005, is a causative agent of ALRTI. It is a non-enveloped, icosahedral

virus with a single-stranded DNA genome, belonging to the Parvoviridae family and measuring 18-26 nm in size. The virus reaches the host through the respiratory, circulatory, or gastrointestinal systems. The clinical significance, complications, and long-term outcomes of the disease remain uncertain. The clinical spectrum in children can range from a simple upper respiratory tract infection to respiratory failure.

In a systematic review and meta-analysis, it was determined that HBoV was frequently detected in asymptomatic children, and so did not have significantly positive attributable fraction among the exposed in ALTRIs (Shi et al, 2015). Regarding treatment, most patients require only supportive care, as there is still no specific targeted therapy (Jartti et al, 2011).

In our cases, the development of severe respiratory failure following contact and the inability to isolate another pathogen indicate that HBoV could be a causative agent for ALRTIs requiring aggressive intensive care admission. HBoV should be considered in cases of severe viral ALRTIs.



Figure 1. Bilateral interstitial infiltrates on anteroposterior chest radiograph of patient 1.

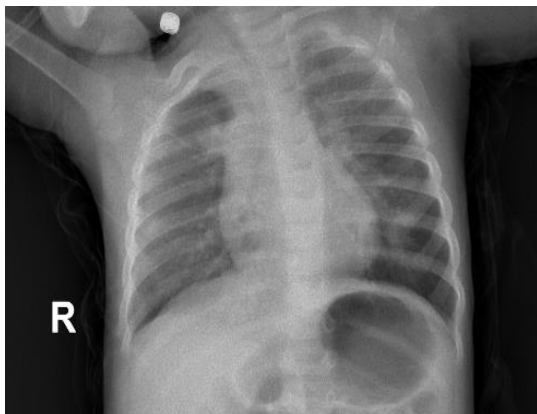


Figure 2. Bilateral perihilar infiltrates on anteroposterior chest radiograph of patient 2.

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