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A Case Report of Concurrent Coxsackievirus A6 Infection and Kawasaki Illness

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Introduction

Coxsackievirus A6, a member of the enterovirus family, has gained increasing attention in recent years due to its association with various clinical conditions, particularly hand, foot, and mouth disease. It can also cause a range of other illnesses, from mild respiratory infections to more severe systemic diseases. Kawasaki disease, a rare but serious inflammatory condition that primarily affects young children, is characterized by fever, rash, conjunctivitis, mucosal changes, and systemic inflammation, including coronary artery involvement. The concurrent occurrence of Coxsackievirus A6 infection and Kawasaki disease is an unusual clinical phenomenon, as the two conditions are generally considered to be separate entities with distinct pathophysiologies. However, there have been emerging reports of viral infections triggering or coinciding with the onset of Kawasaki disease, suggesting a potential link. This case report highlights the clinical presentation, diagnostic challenges, and management of a pediatric patient diagnosed with both CVA6 infection and Kawasaki disease. A 4-year-old female patient was admitted to a pediatric hospital in Hong Kong with a 5-day history of fever, rash, and irritability. Her symptoms began with a high fever (up to 39.5°C) that persisted for three days, followed by the development of a maculopapular rash on the face, trunk, and limbs. The patient was noted to have irritability, swelling of the hands and feet, and redness of the eyes. There was no history of travel or contact with sick individuals outside of the family [1,2].

Description

The child had no significant medical history, and her immunizations were up to date. Family history was non-contributory. The clinical features were concerning for a viral infection, and a differential diagnosis included Coxsackievirus A6 infection and Kawasaki disease. A thorough workup was undertaken to establish the diagnosis. The exact pathophysiology of Kawasaki disease is not completely understood, but it is thought to be an autoimmune response that is triggered by an infection, possibly a viral or bacterial pathogen. The body's immune system reacts to the infection by activating inflammatory pathways that result in endothelial damage and vasculitis, particularly affecting the coronary arteries. This inflammation can lead to coronary artery dilation and aneurysms, making early diagnosis and treatment critical. While both conditions are typically separate clinical entities, the emergence of viral infections as triggers for Kawasaki disease is an area of growing interest. It is well established that certain viruses, particularly enteroviruses, can precede the onset of Kawasaki disease, but the specific role of CVA6 in this process remains unclear [3-5].

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Conclusion

Coxsackievirus A6 is increasingly recognized for its role in causing severe forms of HFMD, characterized by painful blisters on the hands, feet, and mouth. However, it has also been implicated in more serious systemic illnesses, including viral myocarditis and, as demonstrated in this case, Kawasaki disease. The pathogenic mechanism by which CVA6 may trigger Kawasaki disease is likely linked to its ability to induce an immune-mediated inflammatory response. This case also underscores the importance of early diagnosis and intervention in pediatric patients presenting with fever, rash, and systemic inflammation. Kawasaki disease is a potentially life-threatening condition, particularly if untreated, and early treatment with IVIG can significantly reduce the risk of coronary artery complications. Given the emerging links between viral infections and Kawasaki disease, clinicians should maintain a high index of suspicion for KD in children with viral infections, particularly in the setting of unusual presentations such as concurrent CVA6 infection. While the pathophysiological mechanisms remain under investigation, this case reinforces the need for awareness among clinicians about the possible overlap of symptoms and the importance of early intervention. The timely administration of intravenous immunoglobulin and supportive care was crucial in the management of this patient, leading to a favorable outcome.

Acknowledgement

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Conflict of Interest

None.

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