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Case Report

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Influenza with Rash or Influenza with Kawasaki Disease?

Zahouani T*, Lopez JV, Sitnitskaya Y

Department of Pediatrics, Lincoln Medical and Mental Health Center, New York

***Correspondence author**: Zahouani T, Department of Pediatrics, Lincoln Medical and Mental Health Center, New York, USA, Tel: +1718-579-5030; E-mail: tarikzahouani@gmail.com

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Introduction

The clinical presentation of Influenza in children varies from subclinical illness to complicated disease with multiorgan involvement [1]. Many bacterial and viral infections present with a rash in the pediatric patient, which is not a common presentation of Influenza [2]. We present a case of Influenza infection presenting with a generalized erythematous rash.

Keywords: Kawasaki disease; Influenza A; Influenza B

Case presentation

A 3 year-old African American male presented with 1 day history of fever, swelling and redness of the face, bilateral redness of the eyes, and swelling of hands and penis. The patient also had 2 episodes of non-bloody, non-bilious emesis, associated with poor PO intake and decreased level of activity. On Physical examination, the temperature was 102.5F, heart rate 137 bpm, and respiratory rate 56/min. The patient was alert. Generalized erythema of the skin, bilateral edema of hands and feet, lips and mid-shaft penis, with bilateral non-purulent conjunctival injection and clear rhinorrhea were noted. No erythema, exudates, or ulcerations were noted in the oropharynx, and enlargement of cervical lymph nodes was not appreciated. Influenza antigen test was positive for Influenza B. The WBC count was $6.0x10^9$/L, with 75% Neutrophils and 15% Lymphocytes. CRP was 1.75 mg/dl, and Procalcitonin was 4.66 mcg/L. Urinalysis was normal. The patient was treated with IV fluids and Oseltamivir 45 mg PO daily. Due to concern about Kawasaki Disease (KD) echocardiogram was performed, which was normal. Five day treatment with Oseltamivir had been completed. Fever resolved after 4 days. At the follow up visit 2 days after completion of treatment the patient was asymptomatic. An echocardiogram performed 2 weeks after the onset of symptoms showed no abnormalities.

Discussion

Rash develops in approximately 2% of patients with influenza A [3]. While rash is not a common manifestation of Influenza, petechial rash simulating meningococcal infection, is the most unusual [4] Hope-Simpson reported that between 1962 and 1966, in a British community, 2% of patients with Influenza A and 8% of patients with Influenza B, presented with rash. Among 151 patients hospitalized with Influenza in Australia in 1982, 4 of 56 (7%) <15 years old (and none ≥15 years old) presented with rash; 3/4 were initially diagnosed as measles, and of these three, two had Influenza B [5]. Two prior reports describe morbilliform rash in patients with laboratory confirmed Influenza B. A case report from India described an 11-year-old child, and a case series from Germany included six children aged 4-13 years with Influenza-like illness and generalized exanthem and enanthem [2,6,7]. Influenza has also been described to occur simultaneously with Kawasaki Disease, a systemic vasculitis of medium-size vessels, which requires treatment with high dose Intravenous Immune Globulin (IVIG), and if untreated may result in cardiac complications [8,9]. KD is a clinical diagnosis. Classic (typical) Kawasaki disease is diagnosed based on the presence of a fever lasting five or more days, accompanied by four out of five findings: bilateral conjunctival injection, oral changes such as cracked and erythematous lips and strawberry tongue, cervical lymphadenopathy, extremity changes such as erythema or edema of hands and feet, and polymorphous rash. Incomplete (atypical) Kawasaki disease is considered in persons with fever lasting five or more days and with two or three of these findings [10]. Jordan-Villegas et al reported that 8.8% of Kawasaki disease patients had documented respiratory viral infections including Influenza [8]. Evidence suggests that a positive respiratory virus test result should not be used to exclude the diagnosis of KD [11]. Our patient had 3 of 5 diagnostic criteria for KD: erythroderma, swelling of hands and feet, and bilateral non-exudative conjunctivitis. However, area of distribution of edema was beyond one described in KD. However, duration of fever in our patient was less than 5 days, and this tipped the scale towards treatment of Influenza alone.

Conclusion

Influenza infection can present with rash and should be included in the differential diagnosis of febrile exanthema, with or without concomitant symptoms suggestive of Kawasaki Disease. Decision to treat KD in a patient with Influenza should be based on weighing risks versus benefits of utilization of a high dose of blood product IVIG.

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