

Erythroderma rash after cefamandole injection in a child with infectious mononucleosis

Abstract

Antibiotic-induced skin eruption occurring in cases of infectious mononucleosis (IM) is often encountered in clinical practice. Ampicillin, azithromycin, and amoxicillin were the most common reported drugs. Similar phenomena have also been observed with other antibiotics. Here we reported a case of Cefamandole-induced rash in a child with IM. The patient developed a severe Erythroderma rash while receiving Cefamandole injection, which was similar to the rash seen with amoxicillin treatment of patients with IM. The mechanism why the rash eruptions develop is not fully elucidated, although some common theories are proposed. This case told pediatrician that we should avoid antibiotics use during only infectious mononucleosis.

Keywords: infectious mononucleosis (IM), antibiotics, rash, cefamandole injection

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Introduction

Infectious mononucleosis (IM) was most frequently reported in children patients in China with classical manifestations of fever, sore throat and cervical adenopathy, which made it difficult to differentiate from bacterial infection.¹ In children rash associated with amoxicillin and ampicillin in infectious mononucleosis is a common and well-documented clinical scenario.^{2,3} Cephalosporin drugs were considered relatively safe and often used in children with IM who were suspected with bacterial infection. However cases of rash induced by these drugs were more illustrated in children. The present case reported a patient with IM treated with Cefamandole who later developed a severe skin rash.

Case report

An 11-years old boy who admitted to our department complained fever and enlargement of cervical lymph nodes for 7days. He had no personal or family history of tuberculosis and drug allergies. On admission, the patient had fever and eyelid edema. His Vital signs: body temperature 39.1°C, blood pressure 114/63 mmHg, heart rate 89beats/min, and respiratory rate 22 breaths/min. His head and neck examination revealed pharynx and soft palate erythematic with bilateral white exudates on his tonsils, bilateral cervical lymphadenopathy in the neck. The abdomen was flat and soft. Upper abdomen and per umbilical tenderness were noted with normal bowel sounds. The liver edge was not touched while the spleen edge was touched below the left low costal margin. Other examinations were normal.

The results of laboratory tests on admission and during the course of hospitalization can be seen in Table 1 Peripheral blood smear examination revealed atypical lymphocyte 17%; urine and stool analysis test was normal. Serology for hepatitis viruses, cytomegalovirus and MP were all negative. Blood culture failed to grow any bacteria. Monospot testing for heterophil antibody was negative. Blood coagulation function was normal. Serum IgM antibody for Epstein-Barr virus infection was positive. Abdominal ultrasonography showed splenomegaly and multiple Para-aortic lymph nodes. Bone marrow examination showed proliferative bone marrow. Chest X-ray and echocardiography were unremarkable.

At first Ganciclovir and Cefamandole were given to the patient because he had suppurative tonsillitis. The 2nd day, liver protection

therapy was given to the patient and infectious mononucleosis was confirmed. Meanwhile the patient developed progressive maculopapular exanthems and facial edema. We thought that the rashes can be the result of drug sensitivity and stopped antibiotics treatment. Moreover, we gave him corticosteroid and immunoglobulin for one day. And then the patient was transferred to emergency department. The rashes disappeared after corticosteroid and immunoglobulin treatment for 3days and later his liver function was normal. 15days later, the patient was discharged.

Table 1 Laboratory test results on admission and during the course of hospitalization

Day of Admission	0	2 nd	4 th
white blood cells (/mm ³)	7420	7250	12390
Lymphocytes (%)	42.25	41.54	55.9
Hemoglobin (g/dL)	12.9	13.4	13.4
Platelet count(/mm ³)	169000	177000	152000
Aspartate aminotransferase (U/L)		242	137
Alanine aminotransferase (U/L)		312	183
Alkaline phosphatase (U/L)		402	338
Gamma-glutamyl transferase (U/L)		137	183
CRP (mg/L)		12.23	
total bilirubin (umol/L)		9.94	14.6
Erythrocyte sedimentation rate (mm/h)		31	

Discussion

Infectious mononucleosis (IM) caused by Epstein-Barr virus (EBV) is a common acute disease, which predominantly affects children in China. Clinic manifestations of IM in the early stages were likely to be confused with suppurative tonsillitis and lymphnoditis. So IM patients often receive antibiotic treatment. Some patients have been reported to develop skin eruptions due to the viral infection during this disease.⁴ However antibiotic-induced rash is well documented like ampicillin, amoxicillin, cephalixin, minocycline and azithromycin,^{5,6} in adults while amoxicillin and ampicillin are common in children. In this case we presented an older boy had skin rash eruptions in the 2nd day of Cefamandole administration. However the mechanism of rash induced by antibiotics in IM patients is poorly understood, it does not seem to be related to drug allergies. It is generally accepted that the

skin rash might result from enhanced drug allergic reactions mediated by EBV infections or weakened resistance to drug in immune systems. Virus induced abnormal immunomodulation in IM patients is believed to be a key factor for development of skin rashes during concomitant antibiotic therapy.

However, some IM patients were found to co-infect with streptococcus or other bacterium recently.⁷ Antibiotics can be used in such patients, but ampicillin and its derivatives should be avoided for it may cause serious rash. In our report, the child developed a severe Erythroderma skin rash after antibiotic administration due to the boy having supportive tonsillitis firstly. We proposed that the rash may be related to the abnormal immunomodulation of the patients. The rash of the boy improved after corticosteroid and immunoglobulin treatment for several days. So short period administration of corticosteroids is recommended in patients with severe clinical manifestations or complications.

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None.

Conflicts of interest

Author declares that there is no conflicts of interest.

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