Case Report

The Temperature Dropped to Normal When Rash Had Appeared For 12 Hours: An Atypical Case of Measles in Adult

Chun-ling Liu¹, Chun-wei Wang¹, Ying Liu², Ping Zhou¹, Xiao-juan Li¹, Hui-yuan Si¹ and Hong-wei Zhang¹

A twenty-eight-year-old male patient with five-day's fever (the highest body temperature reached 39.4°C) and 10-hour's rash (first on face) presented to the department of emergency for "drug rash", at that time his temperature was 38.6°C. Two hours later, his temperature fell to normal. Then this patient's entire body rash increased significantly and lasted for 13 hours. Serum measles antibody IgM(+) confirmed the measles diagnosis. He had received measles vaccine as a baby. Clinicians should be aware of this atypical clinical manifestation of adult measles. If this kind of patients were misdiagnosed as drug rash and given corticosteroid, measles disease may be aggravated. Specific serum measles antibody testing may be the only reliable method for differential diagnosis, but the earliest time point for examining the antibodies of measles still needs precise research.

Key words: Measles, atypical; Temperature; Serology

Measles is a highly contagious and serious disease. Despite the availability of a safe and effective vaccine, approximately 158 000 people died from measles globally in 2011 (WHO).¹ For typical measles, the illness is most severe during the first or second day of the rash.² In this case report, an atypical adult measles proved by serologic testing whose temperature fell to normal when rash had appeared for 12 hours was reported.

CASE REPORT

A 28-year-old man who is a booking clerk working at an airport was admitted to the General Hospital of Air Force at 8 p.m. on September 4, 2008 after five-day fever, three-day cough, two-day diarrhea and 10 hours rash.

The patient had fever on August 30, and his temperature was 37.9°C. Then he had a cough on September 1, and had painless diarrhea (water stool 6-7 times a day) on September 2. Other accompanying symptoms included sore throat, dizziness, malaise,

there was no photophobia, lacrimation, nasal congestion, runny nose or other symptoms. His highest temperature was 39.4°C. He had visited two hospitals and had blood routine examination, the WBC was $5.3 \times 10^9/L$, he was prescribed oral Spiramycin (on August 31), and intravenous drip of Shuanghuanglian powder (on September 3). In the morning of September 4 (8 a.m.), rash was found on his face, then progressed to his neck, trunk, arms and legs. He came to emergency department of our hospital at 6 p.m. for "drug rash", at that time his temperature was 38.6°C.

Two hours later, he was admitted to hospital, physical examination revealed: temperature 36.3°C, varying sizes of red rash scattered on the entire body, rash on the face was most dense, followed by the trunk, limbs sparse, no rash was found on palms or soles. Those rashes faded when they were pressed. There also existed throat congestion, bilateral antiadoncus without purulent secretions and three coriolis on the left bucca mucosa opposite the second molars.

On September 5 (the second day of hospitalization), blood sample of this patient was taken for routine test and the results were as follows: WBC $6.1 \times 10^9/L$, N 76.1%; alanine transaminase (ALT)

¹Department of Infectious Disease, Air Force General Hospital of Chinese People's Liberation Army, Beijing 100142, China;

²Department of Dermatology, General Hospital of Yankuang group, Yanzhou, Shandong Province 273500, China.

Correspondence: Chun-ling Liu, Email: liuchunling100@aliyun.com

Figure 1. Symptoms-time of the measles patient.

48 U/L, aspartate transaminase (AST) 54 U/L, lactate dehydrogenase (LDH) 309 U/L, gamma glutamyl transferase (GGT) 184 U/L; one blood sample was sent to Beijing CDC: measles antibody IgM(+), rubella antibody IgM(-). The abdominal ultrasound examination showed the liver and gall bladder were normal.

After admission, the rash increased significantly. At 9 a.m. on September 5, 13 hours after admission, rash reached his palms and soles of feet. Diarrhea stopped, temperature remained normal. On September 9, the rash disappeared completely, followed by brown pigmentation without the desquamation. Test revealed ALT 64 U/L, AST 32 U/L (September 9); This patient was not given hepatoprotective drug during hospitalization. He was discharged from hospital on September 10, and came back to the outpatient department for a chemical reexamination two weeks later, ALT, AST and GGT returned to normal.

The patient denied the history of measles disease and the exposure to measles patients recently. He was born in a provincial capital city in 1980, and had gotten 2 doses of measles vaccine during his childhood, but his parent had not reserved his vaccination record book.

DISCUSSION

In this case of patient with measles, rash erupted on the face after 5 days fever, and spread to entire body, including palm and soles of his feet, Koplik's spots

were found on the mucous membrane of mouth, leaving some brown discoloration spots as the rash disappeared, measles-specific IgM(+), so diagnosis of measles was confirmed in this patient. For typical measles, the illness was most severe during the first or second day of the rash. But this patient's temperature fell to normal after rash appeared for 12 hours, when the rash had been progressing. There's no description of such atypical measles cases and case reports in classic medical textbooks and literature.

For most patients with measles, before rash erupted, high fever lasts for 3 to 5 days, and the longest is 7 days. Patients usually visit hospital for more than one time and use a variety of drugs, so atypical measles are easily misdiagnosed as drug rash. If corticosteroid was given to patients to treat drug rash, the disease may be deteriorated, and the cases of missing measles may result in increased transmission of the disease.

Specific serum measles antibody testing may be the only reliable method for differential diagnosis. Generally, measles IgM antibodies become positive 3 days after the onset. But Hung et al reported four cases of measles patients who were colleagues of 302 Military Hospital of China, measles IgM antibody were negative 3-5 days after onset (the 1st-2ed day of rash eruption), and positive on the 8th-9th days after onset (the 4th-7th day after rash eruption).³ In this case report, measles antibody IgM was positive 6 days after onset (the 2ed day of rash eruption). The earliest time point examining the antibodies of measles

still needs precise research.

Liver damage was quite often in adult patients, the highest rate reported was 80%.⁴⁻⁶ The patients had mildly elevated ALT, AST, LDH and GGT during rash period. Liver was normal by abdominal ultrasound B. ALT, AST, LDH and GGT returned completely to normal two weeks after rash disappeared without giving any liver protection drug. Mild liver damage caused by the measles may not need drug treatment.

This case suggested that for patients whose temperature falling to normal 12 hours after rash appeared, it should be considered the possibility of atypical measles, and measles IgM test should be conducted to confirm or exclude the measles diagnosis. If not, first, the patients of missing measles may lead to the spread of this disease. Second, if patients were misdiagnosed as drug rash and given corticosteroid, measles disease may become

aggravated. The earliest time point examining the antibodies of measles still needs precise research. What is more, mild liver damage caused by the measles may not need liver protection drug treatment.

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