The different cutaneous presentations in three cases of Kawasaki disease as confounding factor of diagnosis

Aysegul Dogan Demir,[1] Nilufer Goknar,[2] Selcuk Uzuner,[3] Aysel Vehapoglu,[4] Turkay Saritas,[5] Faruk Oktem[6]

Abstract

We report three paediatric cases of Kawasaki disease (KD). Erythema multiforme (EM) was the presenting cutaneous feature in two patients, with young age (43 days old), macular rash and meningitis in the third patient. Diagnosis of KD was difficult due either to initial misdiagnosis of drug eruption, incomplete presentation, or the young age of the patient. Clinicians should be aware of these cutaneous presentations to prevent KD complications.

Keywords: Kawasaki, Erythema Multiforme, Infant.

Introduction

Kawasaki disease (KD), also known as mucocutaneous lymph node syndrome, is an acute multisystem vasculitis that occurs principally in infants and children younger than 5 years of age. The etiology of KD is unknown.[1,2]

The clinical characteristics of KD include prolonged and unexplained fever lasting for more than 5 days, in addition to diffuse mucosal inflammation, bilateral nonpurulent conjunctivitis, dysmorphic erythematous skin rashes, indurative angioedema over the hands and feet, and cervical lymphadenopathy. Complete KD patients needed to present with fever (> 5days) and at least four of these principal features.[2] Early diagnosis is important because cardiac complications can be prevented with prompt treatment.

Some KD patients do not develop sufficient features to meet the formal diagnostic criteria. Children with suspected KD but who do not fulfill the diagnostic criteria (i.e., exhibiting fewer than four signs of mucocutaneous inflammation) might have incomplete or atypical KD; "incomplete" KD is the preferred term, because such patients do not differ from those with classic KD in any way.[3] Nonspecific or atypical clinical features including irritability, aseptic meningitis, vomiting, abdominal pain, diarrhoea, gallbladder hydrops, urethritis, hypoalbuminaemia and arthritis can also manifest. KD diagnosis is delayed in the majority of infants less than 6 months of age because of incomplete presentation.[1,2]

Cutaneous manifestations of KD are usually nonspecific and manifest as multiple symmetric erythematous eruptions between 3 and 5 days of fever.[3] Erythema multiforme (EM) is a rare presentation of KD.[2-4] Here, we report three cases of KD, with different presentations: two patients presented with EM, the third patient presented with macular rash, unexpectedly at a young age and meningitis.

Case Reports

Case-1

A 5-year-old male was admitted to our clinic with remitting fever, rash, and irritability; fever had begun 4 days previously and was unresponsive to antipyretics. The patient had received amoxicillin-clavulanic acid treatment 4 days before admission. The rash was characteristic of EM, with annular cutaneous manifestations and multiple target-like erythematous lesions. The rash which was started on the third day of fever, predominantly affected the extensor surfaces of the extremities, but was also present on the trunk; the face, scalp, palms of the hands, and soles of the feet were relatively spared. The physical examination also revealed non-exudative conjunctivitis (started on the third day of fever) and lymphadenopathy on the left cervical region, 1.5 cm in diameter. White blood cell (WBC) count, platelet (plt) count, and erythrocyte sedimentation rate (ESR) were 6300/mm3, 312,000/µL, and 83 mm/hour, respectively. Cultures (blood, urine and throat) and viral serology were negative. During hospitalization, fever persisted for 1 day and he developed erythema and edema on the extremities. Echocardiography (ECHO) did not reveal any coronary changes. Treatment with IV IG (2 g/kg) and high-dose aspirin was started. On day 9, blood analysis revealed thrombocytosis. Cardiologic examination with ECHO at 6 weeks was normal.

Case-2

A 21-month-old female was admitted with remitting fever for 7 days, diarrhoea, rash, and mucositis. The rash and mucositis had started on the fourth day of fever. The

[1,3,4]Department of Paediatrics, [2,6]Department of Paediatric Nephrology, Bezmialem Vakif University Medical Faculty, [5]Department of Paediatric Cardiology, Medipol University, Istanbul, Turkey.

Correspondence: Aysegul Dogan Demir. Email: ayseguldogandemir@gmail.com

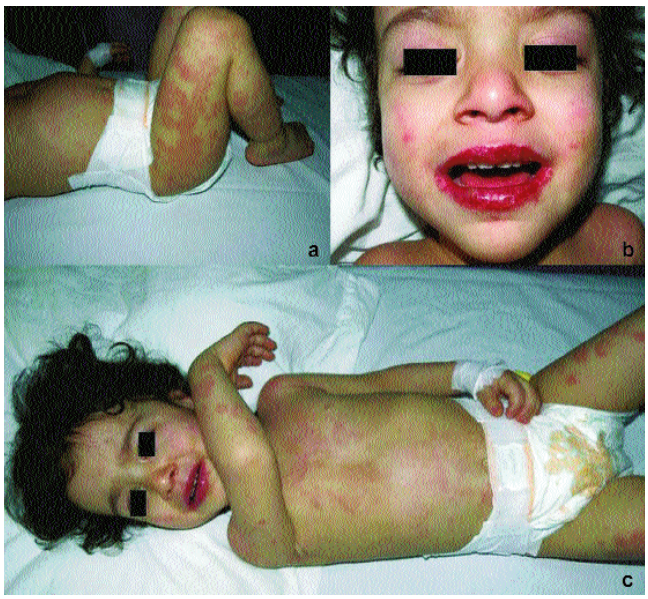

Figure-1: a) Erythematous and target-like rashes on the extensor surfaces of the extremities; b) Reddened, dry, cracked lips, strawberry tongue, and gingivitis. c) Erythema multiforme on the trunk.

patient had received amoxicillin-clavulanic acid treatment for 5 days before admission. The physical examination revealed non-exudative conjunctivitis, bilateral cervical lymphadenomegaly, reddened, dry and cracked lips, strawberry tongue, and gingivitis. Palmoplantar oedema, hyperaemia, and desquamation of the anal region were also observed. Rashes were erythematous and target-like, principally manifesting on the extensor surfaces of the extremities (Figure-1).

WBC count, PLT count, C-reactive protein (CRP), and ESR were 22,200/mm3, 472,000/µL, 15.1 mg/dL, and 76 mm/h, respectively. Cultures (blood, urine and throat) were sterile. Viral serology was negative. ECHO did not reveal coronary dilations. A diagnosis of KD was established based on the presence of fever persisting for 5 days and four additional clinical criteria. IV IG (2 g/kg) and high-dose aspirin was started. Following treatment, the patient's clinical condition improved.

Case-3

A previously healthy 43-day-old male was admitted to our emergency ward with remitting fever for 4 days (up to 39.1°C), diarrhoea, rash and mucositis. The patient had received a single dose of ceftriaxone in an outpatient clinic. The rash and mucositis started on the day of admission. On admission he was agitated: physical examination revealed non-exudative conjunctivitis, reddened and cracked lips, and strawberry tongue. The erythematous rashes manifested predominantly on the

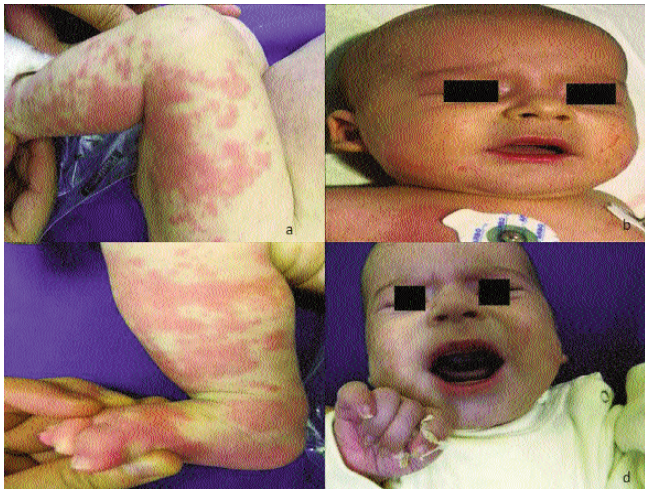

Figure-2: a, c) The erythematous rashes on the trunk and face. b) Reddened and cracked lips, and strawberry tongue. d) Periungual desquamation of the fingers.

trunk and face (Figure-2). WBC count, PLT count, CRP, eosinophil, and ESR were 14,000/mm^3, 254,000/µL, 17 mg/dL, 920 /µL, and 82/h, respectively. Lumbar puncture revealed 280/mm^3 leukocytes. Blood, BOS and urine cultures were sterile. An initial ECHO performed on fever day 5 revealed no coronary dilation. The rash was diagnosed as drug eruption due to the atypical age of the patient at admission, eosinophilia following a blood count test, and the previous administration of antibiotic medication. Ampicillin sulbactam and cefotaxime were started because infection could not be ruled out. A biopsy was done from the rash but not consistent with erythema multiforme. On fever day 7 a follow-up ECHO was performed, revealing coronary aneurysms. A 3.5-mm-diameter left coronary aneurysm and right coronary dilatation with a diameter of 2.5 mm were detected. Periungual desquamation was also observed during week 2. A diagnosis of KD was established based on the fever for 5 days and presence of four additional clinical criteria. IVIG (2 g/kg) and high-dose aspirin were started. Following treatment, the patient's clinical status improved.

Discussion

Kawasaki disease is the leading cause of acquired heart disease in children in developed countries, with 20% of untreated patients developing coronary artery aneurysms.[1,2] Because there is no diagnostic test or pathognomonic clinical feature used to diagnose KD, clinicians should be aware of the different clinical presentations of the disease.[1]

The skin eruptions of KD are variable and nonspecific; the most-common are erythematous maculopapular rashes

on the extensor surfaces and trunk. EM is reported to be a rare cutaneous manifestation of KD.[3,4] KD with EM has been described in a 22 month-old female (in 1979;[3]), in a 16-month-old boy (in 2010;[4]), in three annular lesion cases (in 2008;[5]), and in a 4-year-old boy with incomplete KD (in 2013;[6]). EM is an acute, self-limiting, occasionally recurring skin condition that is generally associated with infections including herpes simplex and mycoplasma pneumonia, and with the use of medications such as penicillins and sulfonamides.[3] Because KD patients frequently have a previous history of antibiotic prescription, due to high-grade fever and elevated acute-phase reactant levels, EM can be misdiagnosed as drug eruption, viral exanthema, or infectious rash. Our two cases of EM were misdiagnosed with drug reactions at admission. In all cases, there was a history of antibiotic treatment and the rash had erupted during the first 5 days of fever. The eosinophilia in the third case resulted in a misdiagnosis of drug eruption, but in previous reports eosinophils were elevated in KD patients compared to age-matched febrile controls.[7]

Kawasaki disease is unusual in very young infants and is typically documented in case reports .Clinicians typically do not consider KD in infants younger than six months of age; in our third case, the initial diagnosis was infection. In infancy, KD generally has an incomplete presentation and severe cardiac complications. Our third patient was also admitted with an incomplete presentation, resulting in treatment delay and the development of a coronary aneurism. In a study from Japan only %1.67 of all patients (105755 KD) were younger than 90 days of age.[8] From Turkey a two months old infant with meningitis and a 30 days infant has been described.[9,10]

We have presented three cases of Kawasaki disease in November 2012, December 3012 and January 2013. A retrospective study about the incidence of Kawasaki disease in Turkey would be very interesting.

Conclusion

In conclusion, clinicians should be aware of the different presentations of KD, to avoid delayed diagnosis and cardiac complications.

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