Pustulovesicular Skin Eruption as Presenting Feature of Incomplete Kawasaki Disease

Dear Sir,

A 12-year-old female was referred with a history of fever and abdominal pain for 10 days and swelling all over her body for 4 days. Swelling developed initially over her left leg and arm followed by the right extremities, later involving the entire body. She also gave a history of passage of red-colored urine for 1 day. On general physical examination, she was febrile (temperature −102°F) with mild pallor and erythema over the lips. Her blood pressure was normal and there was no lymphadenopathy. On abdominal examination, mild ascites and tenderness were present. She had pustulovesicular lesions all over the right forearm [Figure 1] and right knee joint along with erythematous skin rash over her buttock and back. The rest of her systemic examination was normal. Investigations are tabulated in Table 1.

The patient was managed conservatively with 3% saline to correct her hyponatremia. Vitamin K and fresh frozen plasma were given for deranged coagulation profile and intravenous antibiotics for high white cell count. Although her electrolytes and prothrombin time showed improvement, her fever did not subside. She developed desquamation of skin around nails after 10 days of admission [Figure 2].

Initially, administration of intravenous immunoglobulin was planned; however, due to financial constraints, she was treated with oral prednisolone 2 mg/kg/day for a week which was tapered subsequently. Aspirin was added as an anti-inflammatory. Her fever subsided, swelling on the extremities reduced, and C-reactive protein (CRP) normalized within a week. The patient was discharged on low-dose aspirin and advised to repeat two-dimensional (2D) echo in 6-week time. After being discharged, she developed Beau's line within 15 days [Figure 3]. Her repeat 2D echo was normal at 6 weeks.

The usual skin rash in Kawasaki disease (KD) is an erythematous maculopapular lesion which is nonbullous and nonvesicular.[1,2] Less common are other types of skin rashes such as scarlatiniform, psoriatic, hyperkeratotic, and pustular lesion, which have been reported in literature.[3-7] A patient who does not fulfill the criteria for KD should be diagnosed as having incomplete KD.[8]

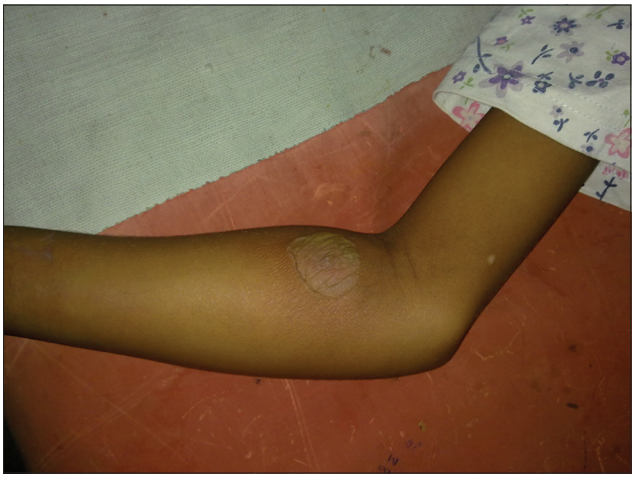

Figure 1: Subsiding bulla on forearm and vesicle on right arm

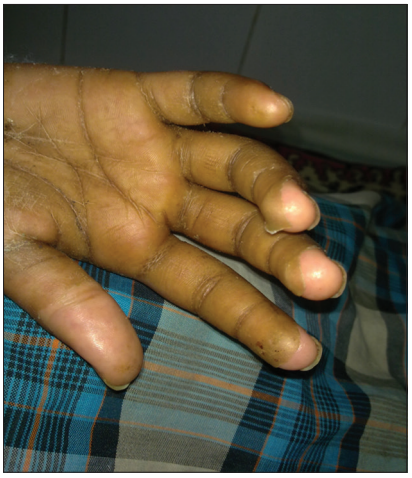

Figure 2: Desquamation of skin around nail

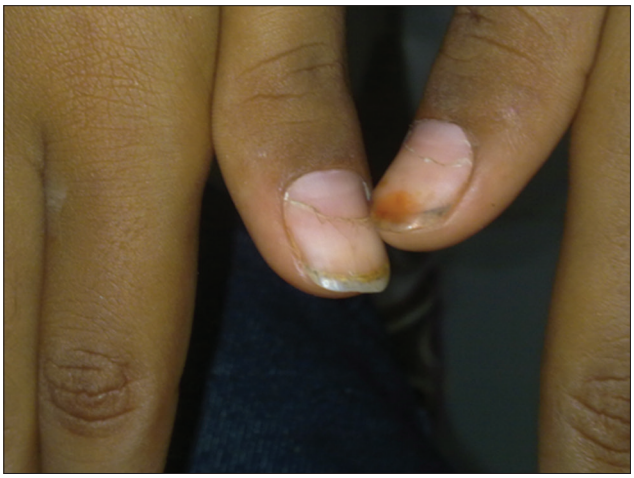

Figure 3: Beau's line: transverse furrows across finger nails

We report an interesting case of incomplete KD with unusual pustulovesicular skin lesions. Although pustular skin lesions have been reported occasionally in literature,[6,7] concomitant

Table 1: Laboratory parameters of index case at the time of presentation

Laboratory parameters	Result	Reference normal range
Hemoglobin (g/dL)	7.8	11.5-15.5
WBC count (×10³/μL)	15.4	5-14.5
Platelets (×10³/μL)	821	150-450
Erythrocyte sedimentation rate (mm/h)	62	3-13
Peripheral smear for malaria parasite	Not detected	-
Urine analysis	10-15 WBC/HPF	0-4/HPF
Urine culture and sensitivity	Sterile	-
Blood culture and sensitivity	Sterile	-
Culture of aspirated fluid from skin lesion	Sterile	-
Urea (mg/dL)	33	20-40
Creatinine (mg/dL)	0.9	0.12-1.06
Sodium (mEq/L)	114	136-145
Potassium (mEq/L)	4.4	3.5-5.5
ALT (units/L)	101	10-55
Aspartate aminotransferase (units/L)	194	15-40
Bilirubin (mg/dL)	0.8	0.2-1.00
Albumin (g/dL)	1.9	3.7-5.5
Globulin (g/dL)	2.9	2.3-5.5
Alkaline phosphatase (unit/L)	54	200-495
Prothrombin time (s)	40	12.2-15.5
C-reactive protein (mg/dL)	363	<10
Creatine kinase (unit/L)	3615	60-330
Direct comb test	Negative	-
Antinuclear antibody	Negative	-
Antistreptolysin O titer (IU)	<200	<200
Rheumatoid factor (units/mL)	10	<15
TORCH serology	Negative	-
IgM serology for dengue, typhoid, and leptospirosis	Negative	-
USG abdomen	Gaseous distension with free fluid in pelvic cavity	-
Doppler study of lower limb	Normal	-
ECG	Nonspecific ST-T changes	-
2D echocardiogram	Normal	

TORCH: Toxoplasma, rubella, cytomegalovirus and herpes, WBC: White blood cell, HPF: High power field, ECG: Electrocardiogram, USG: Ultrasonography, 2D: Two-dimensional, ALT: Alanine aminotransferase

vesicular lesions are very rare. Till date, only one case of KD with pustulovesicular lesion has been reported in literature to the best of our knowledge.[9]

In our case, persistence of fever for more than 5 days and presence of three clinical criteria (changes in extremities, polymorphous exanthema, and changes in oral cavity), elevated CRP and erythrocyte sedimentation rate (ESR), along with the presence of more than three supplementary criteria (albumin ≤3 g/dl, anemia for age, elevated alanine aminotransferase, platelets ≥450 × 10^3 μL after 7 days, white blood cells ≥15 × 10^3 μL, and urine ≥10 white cells/high power field) helped in diagnosing the patient with incomplete KD.[1]

KD should be differentiated from scarlet fever, toxic shock syndrome, measles, adenovirus infections, drug hypersensitivity reactions, and leptospirosis. Measles infection is associated with exudative conjunctivitis and maculopapular rash that begins on the face behind the ear, leukopenia, and normal CRP/ESR. Adenovirus infection is associated with exudative pharyngitis and conjunctivitis. All these findings were absent in our patient. Herpes, cytomegalovirus, varicella, and Epstein–Barr virus infection may sometime also mimic KD. The diagnosis of viral infections was excluded by negative serology. Moreover, typical changes in the extremities in our case which suggest KD is usually absent in these viral infections. In case of drug reaction, there are periorbital edema, oral ulceration, and a normal or minimally elevated ESR which help in distinguishing it from KD. The absence of hypotension and renal involvement in our case clinically helped us to differentiate it from toxic shock syndrome. Scarlet fever was excluded based on typical clinical features at presentation and negative blood culture.[10]

Corticosteroid was given based on observations by Nonaka *et al*.[11] and Shinohara *et al*.[12] They found shorter fever duration in the steroid group in comparison to control, but no statistically significant difference in the prevalence of coronary aneurysm.

This case highlights the association of incomplete KD with pustulovesicular lesion. The probability of KD should be kept in mind as a differential diagnosis in patients presenting with fever and pustulovesicular skin lesions.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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