

Photo Quiz

Descending Maculopapular Rash in a Child

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A 10-year-old girl presented with a two-day history of headache. A fever, dry cough, and maculopapular rash developed one day after the headache began. The rash first appeared on the face and spread to her entire body. The patient had no pruritus or pain. She had loss of appetite but no nausea, vomiting, diarrhea, constipation, or recent travel. She had been taking trimethoprim/sulfamethoxazole for nine days to treat a urinary tract infection. She was taking clonidine and risperidone (Risperdal) for attention-deficit/hyperactivity disorder. She had no known drug allergies and was up to date on immunizations.

On physical examination, the patient had a fever of 101.4°F (38.6°C). An erythematous, non-blanching, maculopapular rash in a morbilliform pattern was noted on the face, trunk, back, and upper and lower extremities bilaterally, sparing the palms and feet (*Figures 1 and 2*). Mild conjunctival injection was observed in both eyes, with normal pharyngeal and tonsillar mucosa.

Question

Based on the patient's history and physical examination findings, which one of the following is the most likely diagnosis?

- A. Chickenpox.
- B. Drug eruption.
- C. Erythema infectiosum.
- D. Measles.
- E. Rubella.

See the following page for discussion.

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FIGURE 1



FIGURE 2



Discussion

The answer is B: drug eruption. The morbilliform rash is characteristic of a drug eruption and consistent with use of a sulfonamide medication. Morbilliform rash is the most common drug eruption and appears as an erythematous, maculopapular rash that begins on the trunk and spreads to the limbs. Urticaria may occur with a drug eruption. In most patients, the clinical presentation of a drug eruption is dependent on prior sensitization. In patients with no previous exposure, a drug-induced rash can develop within five to 14 days of use. In those with previous exposure, a drug-induced rash can occur within two or three days, usually resolving after five to 14 days.

Various medications, including penicillin, cephalosporins, and those that contain sulfhydryl groups, have the potential to create full antigens by functioning as haptens binding to a macromolecule. Other medications such as sulfonamides, anticonvulsants (e.g., carbamazepine [Tegretol], phenytoin [Dilantin]), some nonsteroidal anti-inflammatory drugs, and acetaminophen must be transformed within the body to produce reactive metabolites by functioning as haptens. Some medications that induce delayed-type immune reactions involving T cells also cause variable clinical presentations, most prominently dermatologic findings.¹

The varicella-zoster virus causes chickenpox (varicella) in children and young adults. Chickenpox presents as a pruritic, vesicular rash with lesions in different stages. The rash begins on the chest, abdomen, and thighs and spreads to the face and proximal aspect of the extremities. Fever, headache, malaise, and sore throat may precede the rash.²

Parvovirus B19 is the primary cause of erythema infectiosum (fifth disease), a self-limiting illness presenting as mild flulike symptoms followed by a rash a few days later. The characteristic erythematous rash on both cheeks resembles slapped cheeks.³ In some cases, a pruritic, erythematous rash with reticular morphology appears on the back, buttocks, and trunk, subsequently spreading to the extremities.

Measles is caused by a paramyxovirus. The prodromal phase of measles generally begins with a high fever, accompanied by conjunctivitis, cough, and coryza. The erythematous, maculopapular, blanching rash usually appears three or four days after the onset of fever and resolves after six or

SUMMARY TABLE

Condition	Characteristics
Chickenpox (varicella)	Pruritic, vesicular rash with lesions in different stages; begins on the chest, abdomen, and thighs and spreads to the face and proximal aspect of the extremities; fever, headache, malaise, and sore throat may precede the rash; caused by varicella-zoster virus
Drug eruption	Erythematous, maculopapular (morbilliform) rash begins on the trunk and spreads to the limbs; history of using a causative medication (e.g., antibiotics, anticonvulsant drugs, nonsteroidal anti-inflammatory drugs)
Erythema infectiosum (fifth disease)	Erythematous rash on both cheeks resembling slapped cheeks; a pruritic, erythematous rash with reticular morphology may appear on the back, buttocks, and trunk and then spread to the extremities; mild flulike symptoms such as fever, runny nose, headache, sore throat, and myalgia precede the rash
Measles	High fever, conjunctivitis, cough, and coryza followed by an erythematous, maculopapular, blanching rash that begins on the face and spreads to the trunk and extremities (cephalocaudally), sparing the palms and soles
Rubella	Pink macules with occasional maculopapular and hemorrhagic characteristics that begin on the face and spread to the trunk and extremities; low-grade fever, headaches, arthralgias, and lymphadenopathy may occur with or precede the rash

seven days. The rash first appears on the face and spreads to the trunk and extremities (cephalocaudally), sparing the palms and soles.⁴

Rubella is a contagious disease caused by the rubella virus, a togavirus. The rash usually manifests as pink macules with occasional maculopapular and hemorrhagic characteristics that begin on the face and spread to the trunk and extremities. Other clinical manifestations such as low-grade fever, headaches, arthralgias, and lymphadenopathy (classically the cervical gland) can occur with the rash or precede the rash by one to five days.⁵

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