Approach to Pediatric Red Rash

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CASE 1
A one year-old male presents with one-day history of a non-pruritic rash. He had five days of preceding fever but is afebrile currently. He is otherwise healthy. Physical exam reveals 2-3 mm erythematous-pink macules and papules arranged in rosettes. The rash typically begins on trunk and spreads to face, neck and extremities. A white halo surrounds lesions.

CASE 2
A six-year-old girl presents with a 3-day history of fever, headache, malaise, and upper respiratory tract infection symptoms including cough, coryza, conjunctivitis. Two days ago she developed an erythematous rash on her face (starting at the hairline) which later spread throughout her body.
CASE 3
A four-year-old girl presents with a four-day history of low-grade fever, pharyngitis, malaise and coryza. Two days ago she developed macular/edematous erythematous plaques on her cheeks (with a “slapped cheeks” appearance) as well as erythematous macules and papules on her neck, trunk and extremities that have evolved into a lacy, reticular pattern.

CASE 4
A fourteen year-old boy presents with a one-week history of fever, headache and arthralgia. He also reports that the rash started with one large salmon-colored patch on his right flank, which was followed by a generalized rash consisting of oval pink papules in a fir tree pattern distribution over his trunk. The rash is non-pruritic in nature.
**CASE 5**
A ten year-old boy presents with a one-week history of an intensely pruritic eruptions on his finger webs bilaterally. He reports a similar rash on his genitals. He complains that the rash is worse at night. On exam, erythematous papules and crusting and scale are visible in the finger web spaces. You can also see small linear burrows that track the spread of the lesions. His younger sister has a similar rash.

**CASE 6**
A seven-year-old girl presents with a history of erythematous patches of poorly defined erythema on his wrists, extensor surfaces in elbows and behind the knees. The patches are quite pruritic at times and exacerbated by exposure to heat and after baths. She also has a history of environmental allergies and asthma.
CASE 1 DIAGNOSIS: 
ROSEOLA

Roseola typically presents between 6-36 months most commonly in spring or fall. The etiology is due to infection with Human Herpes Virus (HHV) 6 or 7, which has nearly 100% seroprevalence in adults and shed in saliva and secretions of caregivers. There is commonly a prodromal high fever (and subsequent febrile seizures) and in some cases vomiting and diarrhea for 1-8 days preceding. Classically the red-pink maculo-papular rash appears as fever resolves, but can have both together. Cases may also present with lymphadenopathy (cervical and occipital lymph nodes commonly).

CASE 2 DIAGNOSIS: 
MEASLES

Measles typically presents in between 0-20 years of age commonly in the winter or spring. The viral entity is paramyxovirus which spreads by direct contact or less commonly by airborne droplets. The early rash appears blanchable and morbilliform (measles-like) then coalesces which peaks in 3 days. Associated symptoms include fever, cough, coryza, conjunctivitis as well as Koplik spots in the mucous membranes (which appear as 1 to 3 mm whitish (gray, blue) elevations with erythematous base found often opposite molars).

CASE 3 DIAGNOSIS: 
FIFTH’S DISEASE / PARVOVIRUS B19

Parvovirus commonly affects children between ages 3 to 12 years and is spread by respiratory secretions, blood or vertical transmission (mother-to-fetus) most commonly in the winter or spring. Prodromal symptoms include a low-grade fever, pharyngitis, malaise, headache and coryza for 2-3 days before the rash appears. The typical rash lasts 5 to 10 days but in some cases waxes and wanes for weeks to months with temperature changes, sunlight, exercise and emotional factors. 10% of children develop associated arthralgias and arthritis and in children with hemoglobinopathies or immunodeficiencies, an aplastic crisis may occur.

CASE 4 DIAGNOSIS: 
PITYRIASIS ROSEA

Pityriasis rosea typically develops in adolescents but can affect individuals between 10-35 years in winter or spring. The pathogen is unknown but could be related to infection with human herpes virus-7. Approximately 5% of patients have a viral prodrome of fever, headache, malaise and arthralgias. The classic dermatological presentation includes an annular herald patch in ~50% cases, measuring between 2-6 cm oval/round salmon color centrally with darker red rim. Approximately 2-21 days later (peak 10 days) oval pink (hypopigmented/hyperpigmented in dark-skinned) papules develop in a fir-tree distribution on trunk. There may be fine scale present and the rash can be pruritic. Duration is typically 2-12 weeks, but can last months.

CASE 5 DIAGNOSIS: 
SCABIES

Scabies is found worldwide among people of all groups and ages and commonly affects the hands, feet, wrists, elbows, back, buttocks, and external genitals. It is spread by direct contact with infected people, and less often by sharing clothing or bedding. Sometimes whole families are affected. The mite, Sarcoptes burrows under the host’s skin and deposits eggs that cause an intense allergic pruritis. Treatment includes antihistamines for pruritus as well as Permethrin (Kwellada-P, Nix). All family members should be treated and linen and clothing should be washed.

CASE 6 DIAGNOSIS: 
ATOPIC DERMATITIS

Atopic dermatitis commonly affects the extensor surfaces and cheeks in infants, the antecubital and popliteal fossae in older children, and palms and soles in adults. The classical appearance of atopic dermatitis, or eczema, is erythema, crusting, excoriations, lichenification. It is often aggravated by heat and contact with irritants including soap bubble bath or detergents. Treatment includes hydrocortisone 1% ointments for face and folds, and stronger steroids such as betamethasone valerate 0.05% for body surfaces. Non-steroidal options include Elidel (pimecrolimus) cream or Protopic (tacrolimus) ointment.