Common Childhood Rashes

Images of the various rashes may be available by clicking links. In some cases links are to factual information needed for recognition/management of a systemic disease with dermatological manifestations. The online resources in the further reading section may be useful to find any additional images.

Has the rash got fluid-filled (vesiculobullous) lesions?

Clear fluid
Consider:

- **Chickenpox (varicella)** - vesicles (initially papules, often not noticed), appearing as ‘drops of water’. Superficial, thin-walled with surrounding erythema rapidly changing to pustules and crusts. Appears in crops with all stages represented. First appears on the face and scalp and then spreads to the trunk and extremities. Crusts fall off in 1-3 weeks leaving a pink base. Initial fever is classically high before becoming low-grade. Beware of dyspnoea/cough which may indicate varicella-zoster virus (VZV) pneumonitis.
- **Herpes simplex viral (HSV) infection** - eczema herpeticum (HSV infection superimposed on pre-existing, often mild, eczema causing an eruption of crusty vesicles and eczematous patches).
- **Impetigo** - this usually takes the form of itchy lesions with macules, vesicles, bullae, pustules and gold-coloured crusts caused by *Staphylococcus aureus* or group A beta-haemolytic streptococci.
- **Staphylococcal scalded skin syndrome (SSSS)** - appears as blistered scalded skin, due to focal staphylococcal infection releasing an exotoxin.
- **Toxic epidermal necrolysis** - an ill-defined red *‘burning/painful’* macular or papular rash, spreading from the face or the upper trunk. Bullae form and then coalesce. They generally increase in number over 3-4 days (sometimes hours). The epidermis can then slough in sheets. Probably part of a spectrum of disease which includes SSSS and Stevens-Johnson syndrome.
- **Stevens-Johnson syndrome** - involves a rash that can begin as macules that develop into papules, vesicles, bullae, urticarial plaques or confluent erythema. The centre of the lesions may be vesicular, purpuric or necrotic. Typically the lesion has the appearance of a target, which is considered pathognomonic. Lesions may become bullous and later rupture.
- **Erythema multiforme** - classically appearing as target lesions (erythematous ring with central vesicle or bulla.)
- **Pompholyx** - an itchy vesicular eruption on the hands and/or feet.

Pustular rashes
Consider:

- **Acne vulgaris** - pustules, papules and comedones. Most commonly in teenagers and most commonly on the face but also on the back, shoulders and chest.
- **Folliculitis** - small pustules at the base of hairs.
- **Pustular psoriasis**.

Is the rash papular (raised)?

Consider:

- **Urticaria** - hives or nettle rash. An itchy blotchy raised red rash. The typical lesion is a central itchy white papule or plaque due to swelling of the surface of the skin (wheal). This is surrounded by an erythematous flare.
- **Molluscum contagiosum** - pearly or fleshy, umbilicated (i.e. central depression in papule).
- **Scabies** - itchy, excoriated, S-shaped burrows, which should be visible with a magnifying glass.
- **Insect bites** - bites typically result in single or grouped pruritic erythematous papules. Some may have a central punctum and others may be bullous. There may be a surrounding skin reaction.
- **Viral warts and verrucae** - keratotic nodules or papules most commonly found on the hands and feet.
- **Keratosis pilaris** - keratin accumulation at the base of hair follicles causing a harmless papular skin change.
- **Milia** - common, benign, keratin-filled epidermoid cysts presenting as very small, raised, pearly-white or yellowish bumps on the skin. Common in newborns, but can occur in adults. Usually on the face.
- **Hand, foot and mouth disease** - lesions may be papules, vesicles, blisters or ulcers, occurring typically on the oral mucosa and extremities. Most often caused by a member of the Coxsackievirus group.

Is it red and scaly?

With epidermal breakage (eczematous)?

**Atopic eczema** typically involves itching erythematous patches, papules and plaques with moist crusted erosions on the face, neck and upper trunk and also the elbows and knees.
Without epidermal breakage

Consider:

- **Seborrhoeic dermatitis** - inflamed greasy areas with fine scaling, most commonly on the face. Present with thicker scales as cradle cap in babies and infants.
- **Psoriasis** - chronic plaque psoriasis is typified by itchy, well-demarcated circular-to-oval bright red/pink elevated lesions (plaques) with overlying white or silvery scale, distributed symmetrically over extensor body surfaces and the scalp. (Fissuring within plaques can occur when lesions are present over joint lines or on the palms and soles.)
- **Tinea corporis** - skin lesions have annular scaly plaques with raised edges. There may be vesicles and pustules.
- **Tinea capitis** - scaling, often with hair loss, on the scalp.
- **Pityriasis rosea** - usually on the trunk. A herald patch of 2-5 cm in diameter, which is oval or round with a central, wrinkled, salmon-coloured area, separated from a dark red peripheral zone by fine scales. Symmetrical secondary rash with lesions which are small versions of the herald patch, with the two red zones separated by a scaling ring. They are typically distributed in a 'Christmas tree' pattern.

Is it red but not scaly (and NOT purpuric)?

Consider:

- **Cellulitis** - infection of the dermis and subcutaneous tissue. There is erythema, pain, swelling and warmth of the affected area.
- **Kawasaki disease** - widespread non-vesicular rash along with erythema, swelling and desquamation affecting the skin of the extremities. Associated with this is a fever lasting ≥5 days, marked irritability, bilateral conjunctivitis, inflammation of the lips, mouth and/or tongue and cervical lymphadenopathy.
- **Scarlet fever** and the viral exanthemas - for example:
  - **Measles** - presents as erythematous macules and papules; initially discrete, may become confluent on the face, neck and shoulders. On mucous membranes, Koplik's spots (tiny bluish-white papules with erythematous areolae) may develop. Also, upper respiratory tract infection with cough, malaise and fever subsiding as the rash increases (measles prodrome = the 4 Cs - cough, coryza, conjunctivitis and very cranky!).
  - **Scarlet fever** (= scarlatina) exotoxin-mediated rash (Group A streptococcus) - sore throat, then general erythema (classically with perioral sparing), followed by confluent petechiae in skin folds (Pastia's sign) due to increased capillary fragility. Strawberry tongue (initially white, then red). Skin desquamation (peeling) frequently follows the rash.
  - **Rubella** - pink macules and papules starting on the forehead and spreading to the face, trunk and extremities on the first day. Fades from the face on the second day and the rest of the body by the third day. Petechiae on the soft palate before the rash. Low fever.
  - **Erythema infectiosum** (slapped cheek syndrome or fifth disease) - caused by parvovirus B19. There is dramatic erythema on the cheeks, sparing the nose, perioral and periorbital regions. This disappears after 2-4 days and may be followed by an erythematous macular/morbilliform rash on the extremities, mainly on the extensor surfaces. It is usually not itchy in young children but may be itchy in older children.
  - **Roseola infantum** (sixth disease) - caused by infection with human herpesvirus 6 (HHV-6) and possibly HHV-7. Most common at ages 6 months to 1 year.

Is it red and purpuric?

Consider:

- **Meningococcal meningitis** (not the most common but it must be excluded). Early on there may be a 2-10 mm macular or maculopapular rash (becoming apparent within the first 24 hours of disease) which is sparsely distributed on the face, trunk and lower extremities and blanches on pressure. Later as the disease develops, petechiae in the centre of macules become haemorrhagic (and do not blanche). Use the 'glass test' to assess 'blanchability' of the rash by placing a glass tumbler against lesions and applying pressure.
- **Henoch-Schönlein purpura** - autoimmune hypersensitivity vasculitis of childhood. The main clinical features are skin purpura, arthritis, abdominal pain, gastrointestinal bleeding, orchitis and nephritis.
- **Immune thrombocytopenia** (ITP) - autoimmune condition resulting in low numbers of circulating platelets, causing petechiae and bruising and, less commonly, more serious internal bleeding.
- **Leukaemia** and other haematological disorders.
- **Trauma and non-accidental injury** (NAI).

Algorithm

Summary of Paediatric Skin Rashes
Footnotes\[1,2\]

The full list of the original exanthems is:

- First disease = measles, or rubela.
- Second disease = scarlet fever, or scarlatina.
- Third disease = German measles, or rubella.
- Fourth disease = Dukes’ disease, or Filatov’s disease.
- Fifth disease = slapped cheek syndrome, or erythema infectiosum.
- Sixth disease = exanthem subitum, or roseola infantum.

This ordinal nomenclature came about because, at the turn of the century, there were classically three exanthematous diseases recognised: measles, rubella and scarlet fever. Then, in 1900, Dr. Clement Dukes, medical officer at Rugby School, described another exanthem which he called ‘fourth disease’. In 1905 erythema infectiosum (a term already in use for six years applying to the disease described previously by Tshamer and later by Escherich) was the fifth disease added to the list. Later, sixth disease (roseola infantum) was recognised and fourth disease was rejected by most observers because of insufficient evidence to support its existence as an independent entity. So first, second, third and sixth diseases are now referred to by their more common names, leaving fifth disease as a solitary reminder of the days when, unaided by sophisticated microbiology, observant clinician-epidemiologists were able to categorise a group of confusing exanthems.

Further reading & references

- DermIS– Dermatology Information System
- DermNet NZ

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