Name That Rash: Pediatric Dermatology Cases

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I have no financial relationships with the manufacturers of any commercial products and/or provider of commercial services discussed in this CME activity.

I do intend to discuss off label use of a commercial product/device in my presentation for the treatment of SJS/TEN, alopecia areata, vitiligo, and tinea versicolor.
As a result of attending this lecture, I encourage you to incorporate these changes in your practice:

**Change 1:** Comfortably recognize several dermatoses commonly encountered in the pediatric outpatient setting.

**Change 2:** Develop a brief differential diagnosis for several pediatric dermatoses.

**Change 3:** Devise an initial treatment plan for several common dermatoses.
Name That Rash: Pediatric Dermatology Cases

- Urticaria
- Blistering & Desquamating Rashes
- Contact Dermatitis
- Hair Loss
- Pigmentary Changes
- Scabies
- Atypical Hand Foot & Mouth
Case 1

3 year old with a 3 day history of spreading erythematous papules and plaques with central clearing. The child also has mild URI symptoms and a recent low grade fever.
Case 1

What is this skin condition?

A. Erythema multiforme
B. Urticaria (Hives)
C. Viral exanthema
D. Vasculitis
Urticaria (Hives)

- Variants
  - Transient/acute
  - Chronic Idiopathic (6 week cutoff)
  - Physical

- 10-25% of all people will develop urticaria at some point in their lives

- Pathogenesis:
  - Histamine release from mast cells triggered by the presence of certain antigens
  - Causes localized inflammation and “leaky” blood vessels

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Transient/Acute Urticaria

- Development of skin lesions typically follows
  - Infection
  - Ingestion of a medication or food
  - Rarely associated with collagen vascular disorders or autoimmune disorders
Transient/Acute Urticaria

- Pruritic, erythematous, edematous papules and plaques (wheals) which blanch
- May have central paleness or clearing
- Lesions can vary in size from 2-3 mm to 30 cm
- Lesions typically migrate and are present in one location for less than 24 hours
Urticaria

- Differential diagnosis
  - Erythema multiforme
  - Dermatographism
  - Drug Eruption
  - Vasculitis
  - Mastocytosis

- Work up
  - Careful history
  - Selected laboratory evaluation dependent upon history
Dermatographism (Physical Urticaria)
Urticaria versus Erythema Multiforme
Drug Eruption
Vasculitis
Treatment

- Symptomatic control with oral antihistamines (H1 blockers)
  - Hydroxyzine
  - Diphenhydramine
- Non-sedating H1 antihistamines less effective if used alone
- Oral steroids have not been proven to be necessary for transient/acute urticaria
- Attempt to identify underlying cause and treat or avoid possible inciting agent
Case 3

12 year old male with a 2-3 day history of crusted papules in the perioral region and new development of erythematous macules with dusky centers (targetoid) on the palms
Case 2

What is the eruption on the palms?

A. Erythema multiforme
B. Urticaria
C. Secondary syphilis
D. Vasculitis
Erythema Multiforme

- Self limited cutaneous hypersensitivity syndrome
- Characterized by fixed concentric erythematous rings with blistered or dark centers- “target” lesions
  - Symmetrically distributed
  - Palms & soles, arms & legs
  - Can have oral lesions
- May be precipitated by an underlying infection or medicine
- Resolves over 1-3 weeks
Mucocutaneous Reaction
- Underlying etiologies: medications and infections (mycoplasma pneumoniae)
- Toxic epidermal necrolysis (TEN) more severe variant of Stevens-Johnson Syndrome (SJS)

Clinical presentation
- Prodromal symptoms 1-14 days before abrupt cutaneous eruption
- Fever
- Malaise
- Headache
- Sore throat
Stevens-Johnson Syndrome (SJS)

- Usually involvement of ≥ 2 mucous membranes (eyes, lips, genital mucosa)
- Mucosal lesions may precede cutaneous eruption by 1-2 days
  - Mouth: hemorrhagic crusts, painful erosions
  - Genital mucosa: painful erosions, dysuria
  - Purulent conjunctivitis: ophthalmologic emergency
    - May lead to permanent visual impairment
Stevens-Johnson Syndrome (SJS)

- Cutaneous lesions
  - Erythematous macules with dusky centers
  - Vesicles and bullae with epidermal detachment
High Risk Medications for SJS

- “Old drugs” with high risk:
  - Sulfonamides
  - Aromatic anticonvulsants *(phenytoin, carbamazepine, phenobarbital)*
  - Penicillins
  - Allopurinol
  - Oxicam-NSAIDs

- Newer meds with increased risk:
  - Nevirapine
  - Lamotrigine
  - Zonisamide
Treatment of SJS

- Prompt discontinuation of offending medication
- Optimal supportive care (Burn unit or ICU for TEN)
  - Fluid & electrolyte balance
  - Temperature control
  - Prevention/treatment of infections
  - Rule out concurrent organ involvement (renal, hepatic, hematologic)
  - Respiratory & nutritional support
  - Adequate analgesia
- Wound care
  - Isolation/sterile handling
- Emergent Ophthalmologic consultation
- Controversial (non-FDA approved) treatment with steroids or IVIG
Case 3

2 year old male with a 2 day history of low grade fever, fussiness, & spreading erythema with superficial desquamation, mainly in the creases. Mucous membranes are not involved & vitals are stable.

What is this eruption?

A. Stevens-Johnson syndrome
B. Staph scalded skin syndrome
C. Pemphigus vulgaris
D. Toxic shock syndrome
Staphylococcal Scalded Skin Syndrome (SSSS)

- Affects mainly neonates and children <5 years
  - In newborns known as Ritter’s disease
- Caused by systemic circulation of staphylococcal exfoliative exotoxin
  - Leads to superficial separation of stratum corneum (upper skin layer)
- Often prodrome of pharyngitis followed by fever & generalized painful erythema (sunburn like)
Staph Scalded Skin Syndrome

- Erythema begins on face & spreads to rest of body
  - Rapid superficial desquamation in areas of erythema (not as deep at SJS)
  - Crusting on the face, neck, axilla & groin (flexures)
  - Does not involve the oral mucosa

- May have associated problems with thermoregulation and fluid & electrolyte balance
Staph Scalded Skin Syndrome

- Bacteria is usually not cultured in areas of desquamation as it is toxin mediated
- Usually requires systemic anti-staphylococcal antibiotics to eradicate underlying infection
  - Wound/skin care with bland emollients
  - Supportive care
Case 4

4 year old boy with a 3 week history of a worsening symmetric pruritic eruption on the bilateral dorsal feet. He has no prior history of rashes.

What is the most likely diagnosis?

A. Atopic Dermatitis
B. Contact Dermatitis
C. Tinea pedis
D. Keratoderma
Contact Dermatitis

- Distribution of lesions provide clues to diagnosis
  - Linear
  - Asymmetric
  - Specific shape
Common Contact Allergens

- **Metal**
  - Nickel or cobalt

- **Preservatives**
  - Formaldehyde releasing products
    - Shampoo, lotion, cosmetics, baby wipes

- **Topical medications**
  - Neomycin
  - Bacitracin

- **Dyes**
  - Paraphenylenediamine
    - Hair dye
    - Henna tattoos

- **Lanolin**

- **Fragrances**

- **Plant resins**
Contact Dermatitis

- Erythematous papules, vesicles, or plaques
- May have weeping and crust
- Usually extremely pruritic
Contact Dermatitis

- Treatment
  - Avoid allergen
  - Moisturize
  - Mid potency topical steroids
  - Topical soaks with aluminum acetate for oozing lesions
  - Oral antihistamines
  - Severe cases may require oral steroids
    - May require slow taper
Case 5

7 year old female with a 2-3 month history of enlarging bald spots on the scalp. She denies any itching.

What is this skin condition?
A. Tinea capitis
B. Telogen effluvium
C. Alopecia areata
D. Trichotillomania
Alopecia Areata

- Acquired non-scarring alopecia (bald spots)
- Cause is unknown, but autoimmune basis is hypothesized
- Males=females
- 20% of all cases occur in children
- Family history of alopecia areata is common
- Commonly seen in families with autoimmune diseases
  - Vitiligo, thyroid disease, rheumatoid arthritis, diabetes
Alopecia Areata

- Hair loss in circumscribed areas
  - May have several patchy oval or round areas
- Frontal, parietal areas commonly affected
- No underlying skin changes (no scale, erythema, or pustules)
- Usually asymptomatic
Alopecia Areata

- **Prognosis:**
  - Spontaneous remission is common with limited patchy hair loss if <1 year duration
  - 1/3 will have future episodes
  - ~10% will have chronic course
  - Worse prognosis if more diffuse involvement upon initial presentation

- **Support Group and Information**
  - National Alopecia Areata Foundation
    - www.naaf.org
Alopecia Areata Treatment

- Treatment options: (not FDA approved)
  - Active nonintervention
  - Supportive psychotherapy
  - Wigs/hair bands
    - Locks of Love  www.locksoflove.org
  - Topical steroids
  - Intralesional steroids
  - Contact sensitization
Alopecia Areata

- Differential diagnosis includes
  - *Tinea capitis*
  - *Telogen effluvium*
  - *Trichotillomania*
  - Traction alopecia
Tinea Capitis

- *Trichophyton tonsurans* is the most common dermatophyte to cause tinea capitis in the United States
- Humans are the main reservoir
  - More common in African Americans
  - Most common in 3-7 year olds
- “Classic clinical triad”
  - Scalp scaling, alopecia, & cervical adenopathy
Clinical Features

- **Seborrheic type:**
  - Diffuse scaling/dandruff, may have subtle hair loss

- **“Black dot” type:**
  - Patches of hair loss with broken hairs at follicular orifice

- **Inflammatory type:**
  - Pustules, abscesses, or kerions
    - Higher risk of scarring
Tinea Capitis Treatment

- Requires systemic treatment
- Griseofulvin
  - Gold standard
  - Good safety profile
  - Due to resistance, dosing may need to be higher than recommended on package insert for 6-8 weeks
  - Absorption dependent on dietary fat intake
- Terbinafine
  - Possible option with shorter treatment duration
Telogen Effluvium

- Acquired hair thinning (can be diffuse)
- Rapid conversion of scalp hairs
  - Growing phase → Resting phase (>25%)
- Normally: 85-90% is growing (anagen)
  - 10-15% is resting (telogen)
- Acute stressful events act as trigger
- No areas of focal alopecia, scale, or erythema
- May develop several months after a high fever, illness, surgery, traumatic or stressful event
Telogen Effluvium

- **Diagnosis:**
  - History of preceding event
  - Clinical exam
  - Consider obtaining CBC, iron studies, thyroid studies

- **Treatment:**
  - Reassurance & time
Trichotillomania

- Self induced hair loss resulting from pulling/rubbing/twisting
- Patient often denies pulling hair
- Preadolescence is most common age of onset
- Hairs of varying lengths often in an unusual pattern
- Scalp > eyelash > eyebrow
Trichotillomania

- Treatment
  - Psychiatric referral
  - Cognitive behavioral therapy by an experienced therapist
  - Medications
    - Antidepressants
Case 5

14 year old presents with 3-4 month history of spreading hypopigmented patches with fine scale on the neck, back and chest with minimal associated pruritus.

What is this skin condition?

A. Vitiligo
B. Tinea versicolor
C. Psoriasis
D. Seborrheic dermatitis
Tinea Versicolor

- Superficial skin infection with the yeast *Malassezia* sp
  - Usually affects adolescents or adults
- Infection may cause temporary melanocyte damage
- Oval hypopigmented or hyperpigmented macules with fine, powdery scale
- Lesions commonly located on the upper chest, neck, and shoulders
- Usually asymptomatic
- Recurrence is common
Tinea Versicolor

- **Differential diagnosis:**
  - Seborrheic dermatitis
  - Tinea corporis
  - Vitiligo
  - *Pityriasis alba*
  - Secondary syphilis

- **Work up**
  - KOH
  - Classic short curved hyphae and circular spores “spaghetti & meatballs”
Tinea Versicolor

- Treatment (no FDA approved treatments)
  - 2% Ketoconazole or 2.5% selenium sulfide shampoo applied for 10-15 minutes (as a lotion) daily for 1-2 wks
    - Reapplication at least monthly to prevent recurrence
  - Topical antifungal cream twice daily for 1-2 weeks
    - Econazole (Spectazole®)
    - Ketoconazole (Nizoral®)
  - Severe diffuse cases may require oral antifungal therapy
    - Ketoconazole or Fluconazole
  - Repigmentation or lightening may take several months
Vitiligo

- Acquired depigmenting disorder
- 50% of individuals with vitiligo developed the disorder before age 20
- Possible autoimmune etiology
- Can run in families with autoimmune disorders
- Vitiligo can be localized or generalized
  - Generalized vitiligo is usually symmetric
Vitiligo Treatment

- No FDA approved treatments
- Photoprotection!
- Topical corticosteroids
- Topical calcineurin inhibitors
- Vitamin D derivatives (calcipotriene)
- Phototherapy-narrow band UVB
- Excimer laser
- Cosmetic camouflage
Pityriasis alba
Pityriasis alba

- Localized hypopigmented disorder in children
  - Common on the face
- Usually seen in patients with darker complexions
- Associated with dry skin and atopic dermatitis
- Exacerbated by sun exposure
  - More noticeable in summer
- Treatment
  - Emollients and photoprotection
Case 6

6 month old infant with a 2 month history of a worsening pruritic eruption consisting of multiple small papules, some with scale or crust, on the trunk, arms, legs, hands, feet, & scalp.
Case 6

What is first line therapy for this rash?

A. Topical steroids
B. Topical permethrin
C. Oral antibiotics
D. Oral steroids
Scabies

- Infestation with mite (*Sarcoptes scabiei*)
- Severe pruritus
- Erythematous papules, pustules, nodules, crusted papules, possible burrows & excoriations
- Involves trunk, hands, feet, web spaces, axilla & genitalia
  - *Infants can have scalp and face involvement*
- Spread by close skin contact
Scabies Treatment

- Topical treatment:
  - Older than 8 weeks of age: 5% Permethrin cream applied to entire body surface left for 8-12 hours then washed off
  - Recommend reapplication in 1 week
  - Treat all family members and close contacts
  - Wash bedding and clothing in hot water followed by drying in dryer
    - Seal other items in a plastic bag for 72 hours
Differential Diagnosis

- Dyshidrotic eczema
- Atopic dermatitis
- Contact dermatitis
- *Papular urticaria*
- Acropustulosis of infancy
Papular Urticaria
Papular Urticaria

- Also known as “insect bite-induced hypersensitivity”
- Chronic or recurrent eruption of itchy papules
- Lesions often clustered in exposed areas of the body-face, neck, arms, legs, but spares palms & soles
  - May have excoriations, hyperpigmentation, and scarring
Papular Urticaria

- Usually only one family member is affected
- Lesions may increase in spring & summer
- Treatment
  - Protective clothing & insect repellent when outdoors
  - Topical steroids
  - Antihistamines
  - Emollients
Case 7

3 year old presents with 2-3 day history of low grade fever, fussiness, and decreased po intake. Small erosions are noted on her posterior pharynx. She also has multiple crusted papules and erosions on her face, arms, legs, and buttocks.
Case 7

What is this rash?

1. Hand Foot & Mouth
2. Impetigo
3. Diffuse Herpes Simplex Virus infection
4. Varicella (chicken pox)
Typical Hand, Foot, & Mouth (HFM)

- Common viral illness caused by enteroviruses
  - Serotype coxsackievirus A16 or enterovirus 71
- Summer & fall
- Children <5 years of age
  - Spread by contact with saliva, respiratory secretions, fluid in vesicles, and feces
- Typically asymptomatic
- Mild febrile illness
- Sores in mouth, vesicles on palms & soles
- Nail dystrophy may follow initial infection
Atypical Hand, Foot, & Mouth

- Outbreak initially in 2011-2012
  - 74% cases were PCR positive for Coxsackievirus A16

- Clinical manifestations
  - Fever
  - More severe rash on hands or feet or in mouth
  - “Severe” rash on arms, legs, face, buttocks, and trunk
    - Vesicles, large bullae, and erosions
    - May have accentuation in areas of atopic dermatitis
    - Confused with varicella, eczema herpeticum, & bullous impetigo
    - Hospitalization was more common than with typical HFM
  - Nail shedding after initial infection
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- Atypical Hand Foot & Mouth
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References


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