Rashes, bumps, and more

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Transient lesions

Starnes et al. Pediatr Derm 2011
When in doubt….

- Outline the lesions in pen and see how they evolve
  - Can give diphenhydramine to speed up the process
Causes of acute urticaria in children presenting to the ER

- Unknown (64%)
- URI/other infection (23%)
- Drug (8%)
- Food (3%)
- Bee sting (2%)

Konstantinou et al Ped All Immunol 2011
Ricci et al JEADV 2010
Childhood urticaria

- **Acute urticaria**
  - 1-year period prevalence of 1-3%
  - >15% by age 10 y
  - *Usually lasts 1-2 weeks with viral trigger,*  
    *but may linger as long as 6-12 weeks*

- **Dermographism**
  - 10-15% of population
  - Check for DERMATOGRAPHISM!

- **Chronic ‘spontaneous’ urticaria**
  - Classic definition: regularly x ≥6 weeks
  - Prevalence of 0.2-0.7%

Bruske et al Ped All Immunol 2014
Lee et al Allergy Asthma Immunol Res 2017
Spontaneous urticaria in children

AVOID undertreatment and oversedation!
Urticaria in children: treatment

• Acute management: diphenhydramine

• First-line: scheduled low-sedating, long-acting H1 antihistamine(s)
  – Often need more than standard dose (up to 4-fold), esp. with cetirizine/levocetirizine

• Approved ages for long-acting antihistamines
  – Levocetirizine, desloratadine, fexofenadine: ≥6 months
  – Cetirizine, loratadine, others: marketed OTC for ≥2 years

• Sedating H1 antihistamine at bedtime may increase daytime sleepiness but not efficacy

• Possible benefit of added H2 or leukotriene receptor antagonist (if aspirin/NSAID-sensitive)
Impetigo
Bullous Impetigo

Staphylococcus aureus
- Local production of exfoliative toxin

Impetigo

Staphylococcus aureus > Streptococcus pyogenes
Herpes simplex infection
Angular cheilitis
Small erosions around the mouth
New coxsackievirus on the block: A6
CVA6 in 2 brothers: what a difference some eczema makes

‘Eczema coxsackium’
Onychomadesis following coxsackievirus infection

Davia et al Pediatr Derm 2011
Atopic Dermatitis (eczema)

- Affects 10–20% of schoolchildren in the US
- Early age at onset
  - First year of life in >50%
  - Before age 5 years in 90%

Atopic Dermatitis: Disease Impact

- Intense pruritus/discomfort
- Skin infections
  - *Staphylococcus aureus*
  - Herpes simplex virus (eczema herpeticum)
  - Molluscum contagiosum
- Sleep disturbances
- Impaired social and school functioning
- Disrupted family dynamics

The atopic triad

- Atopic dermatitis
- Hay fever
- Asthma
The atopic march:
AD = ‘entry point’ for allergic disease
Atopic Dermatitis: Diagnostic Criteria

- **Essential features**
  - Pruritus
  - Eczematous dermatitis in age-specific patterns
  - Chronic or relapsing course

- **Important features**
  - Early age at onset
  - Personal and/or family history of atopy
    - Allergic rhinoconjunctivitis or asthma in 70% of AD patients
  - Xerosis
Childhood Atopic Dermatitis

- 2 years of age to puberty
- More prominent lichenification
- Shift to flexor surfaces of the arms and legs, especially the antecubital and popliteal fossae
- Hands/feet, wrists/ankles
- Periorbital and perioral areas of the face; neck
Triggers/Exacerbating Factors for Atopic Dermatitis

- Anxiety/stress
- Climate
  - Extremes of temperature (winter or summer)
  - Low humidity
- Irritants
  - Detergents, wool/other rough material, perspiration
- Infection – systemic (e.g. viral URI) or cutaneous
- Allergens – contact, food
  - Food allergies are a clinically significant trigger in only a small minority of patients (<10% of children)
Kid suffers 3rd-degree burns
A fifth-grader suffered severe burns after playing with homemade slime.

'SHOCKING HORROR' Girl, 10, left with horrific chemical burns after making 'homemade slime' from recipe she found on Google.

'HER SKIN PEELED OFF' Schoolgirl suffers horror burns to her hands after making 'unicorn slime' playground craze with dangerous chemicals.
Contact dermatitis from homemade slime

• **Slime ingredients**
  – Borax (sodium borate): irritant
  – Laundry detergent, glue: irritants + possible contact allergens

• **Hand dermatitis:** fingertips, proximal fingers/webspaces, palms

Heller et al Pediatr Dermatol 2018; Tehrany et al Contact Derm 2019; Salman et al Contact Dermatitis 2019
Basics of Skin Care

• Daily bath or shower
  – No steamy hot showers
  – Minimal mild cleanser

• Application of moisturizer *immediately* after bathing (‘soak and smear’)

• Moisturizers
  – Ointments or creams; *not* lotions
  – *Avoid* alpha-hydroxy, lactic, or salicylic acid
Individualized approach to moisturizer/vehicle selection

- **Ointments**
  - *Less stinging!*

- **Creams**
  - *Less greasy!*
Moisturizer tips

• Lotions have a high water content and are less ideal for eczema patients

• Go for the big jar, but use a clean ‘scoop’ to prevent bacterial contamination
Atopic dermatitis treatment plan

Treatment of active eczema
Daily use of a topical corticosteroid

Maintenance
Daily moisturizer use to all skin
Topical therapies for atopic dermatitis (eczema)

- Use of moisturizers
- Use of topical corticosteroids twice a day for 1-3 weeks as needed
  - If mild/thin lesions, start with OTC hydrocortisone 1% ointment or cream
  - If more severe/thicker, need prescription corticosteroid

X Do not routinely use topical antibiotics
  - Don’t help
  - Can lead to allergic contact dermatitis, bacterial resistance

X Do not routinely use oral nonsedating antihistamines in the absence of other conditions such as urticaria or allergic rhinoconjunctivitis

Eichenfield et al JAAD 2014
Sidbury et al JAAD 2014
Atopic dermatitis: associated findings

Keratosis pilaris

Hyperlinear palms

Ichthyosis vulgaris
A 7-year-old girl presents with a 2-month history of this recurrent pruritic eruption on the arms, legs, and abdomen. Each edematous papule lasts ~1 week. No one else at home is affected. What is the most likely diagnosis?

A  Folliculitis
B  Gianotti-Crosti syndrome
C  Molluscum contagiosium
D  Papular urticaria
E  Scabies
Bug bites
Insect Bite Reactions

• Pruritic, edematous, erythematous papules
  – Often grouped – ‘breakfast-lunch-dinner’ – at sites of bites
  – Frequently excoriated and may become vesicular
  – Disseminated papular urticaria can also occur

• Represents delayed-type hypersensitivity reaction
  – Individual lesions last days to weeks
  – Depends on *individual* immune response, so often only one family member is affected

• Treatment
  – Topical corticosteroid of *at least moderate potency*
  – Sedating antihistamines of limited benefit

• Prevention
  – Insect repellents/protective clothing for outdoor bugs (e.g. mosquitoes)
  – Treat affected animals/their environment (e.g. for fleas)
  – Exterminate home (e.g. for bed bugs)
An 8-year-old girl has a 2-month history of progressive development of this pruritic eruption that also involves the axillae, groin, and trunk. Which of the following is the most likely diagnosis?

A  Folliculitis
B  Milia
C  Molluscum contagiosum
D  Scabies
E  Verruca vulgaris
Molluscum Contagiosum

- Common chronic poxvirus infection in children
- Favors skin folds and the genital area
  - Can occur anywhere on the skin
- Dome-shaped, pearly, umbilicated papule
- Spread by skin-skin contact
Update on molluscum epidemiology

• Epidemiology
  – Affects ~15-20% of children by 10-15 years of age

• Natural history
  – Mean duration ~12 months (range, a few months to 4 years)
  – 30% last >18 months, ~15% last >2 years
Molluscum dermatitis
Inflamed molluscum resembling boils/staph infections
Molluscum!?
‘BOTE’ sign: a helpful acronym

Beginning
Of
The
End

Butala et al Pediatrics 2013
Warts

- Affect 20% of school-age children
- Caused by a variety of human papillomavirus (HPV) types
- Favor hands/fingers, feet, elbows/knees, face

Flat warts

Common warts

Plantar warts

Thromboses = clue
Scabies: classic sites of predilection

- Interdigital web spaces
- Flexural wrist
- Groin
- Axilla
- Waistline/umbilicus
- Ankles & feet

Itchy rash
Scabies

- Skin infestation by *Sarcoptes scabiei* var. *hominis* mite
  - Spread by close personal contact > fomites (lives up to 3 days off host)
  - Typically 5-15 mites on host
  - Latent period of ~4 weeks between initial infestation and onset of symptoms

- Intensely pruritic eruption
  - Pathognomonic burrows (2-10 mm)
  - Erythematous excoriated papules, vesicles, nodules, eczematous dermatitis

- Treat patient and close contacts with overnight application of Rx permethrin 5% cream
  - Neck to toe
  - Repeat in one week
An otherwise well, afebrile 13-year-old boy presents with this tender, erythematous, warm, fluctuant nodule with a central pustule on the neck. He exhibits cervical lymphadenopathy. Which of the following is the most likely diagnosis?

A. Cellulitis
B. Folliculitis
C. Furuncle
D. Impetigo
E. Insect bite reaction
Staphylococcus aureus: skin infections beyond impetigo

**Folliculitis**
- Risk factors: occlusion/sweating, shaving
- Topical antibiotic if localized

**Furuncule (boil)**
(abscess of hair follicle)
- Incision & drainage + oral antibiotic
- Often due to MRSA infection
Acne: 4 key pathogenic factors

- Androgens of puberty
  - Sebocyte: Excessive sebum production
  - Keratinocyte: Abnormal desquamation of follicular corneocytes

- Proliferation of *Propionibacterium acnes*

- Inflammation
## Spectrum of efficacy of OTC topical anti-acne agents

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<th>Comedo- lysis</th>
<th>Anti- microbial</th>
<th>Anti- inflammatory</th>
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<td><strong>Benzoyl peroxide</strong></td>
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<td><strong>Salicylic acid</strong></td>
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Acne: therapeutic ladder

- **Mild primarily comedonal**
  - Salicylic acid wash (if very mild)
  - Topical retinoid, eg adapalene (Differin® gel)

- **Mild primarily inflammatory**
  - Benzoyl peroxide gel or wash
  - Topical retinoid + benzoyl peroxide

- **Moderate inflammatory**
  - Oral antibiotic* + topical retinoid + BPO if >2 mos
  - For teen girls, consider adding oral contraceptive

- **Severe nodulocystic/recalcitrant inflammatory**
  - Oral retinoid (isotretinoin)

*1st line = doxycycline or minocycline
Tinea versicolor

- Most common in adolescents, warm humid environments
- Favors neck and upper trunk
- Hypo- and hyperpigmented (pinkish tan) variants
- Overgrowth of *Malassezia*
- OTC treatment
  - Selenium sulfide or ketoconazole shampoo daily x ~1 week then ~weekly
Pityriasis Rosea

- Peak incidence in adolescence
  - Eruption typically lasts 6-8 weeks
  - Role of HHV-7/-6

- Herald patch in ~50%
  - Initial larger, solitary lesion

- Favors trunk and proximal extremities
  - ‘Christmas tree’ distribution
  - ‘Inverse’ variant affecting groin, axillae more common in young children
Pityriasis Rosea

Salmon-pink oval to round papules/plaques with a slightly raised border

Fine scale centrally, darker pink peripherally

Trailing collarette of scale
Cutaneous Dermatophytoses

- *Trichophyton rubrum* is a common culprit organism

- Tinea corporis, faciei, & cruris
  - Annular, scaly plaques
  - Clue = pustules in advancing border
  - Use of topical corticosteroid can reduce scale (‘tinea incognito’)

- Can usually be treated with a topical antifungal agent (e.g. terbinafine, clotrimazole)
Tinea Pedis

Interdigital maceration

Moccasin pattern of plantar scale

Inflammatory/vesicular

Scaly annular plaque
An 8-year-old girl presents with a lichenified plaque on the lower abdomen and numerous pruritic erythematous papules in a symmetric distribution on the extensor aspects of the arms and legs. Which of the following is the most likely diagnosis?

A  Atopic dermatitis
B  Contact dermatitis
C  Nummular eczema
D  Papular urticaria
E  Scabies
Allergic Contact Dermatitis to Nickel
Contact Dermatitis

• Clinical appearance
  – Often streaky linear, angular or bizarre configurations (‘outside job’)
  – Acute: blistering, oozing, crusting
  – Chronic: scaling, lichenification

• Allergic contact dermatitis
  – Delayed-type hypersensitivity reaction requiring prior sensitization
  – Nickel and poison ivy are common allergens
  – ‘Id’ reaction (disseminated eczema) can develop

• Irritant contact dermatitis
  – Direct toxic effect of chemical or physical agent
  – Water and detergents are common culprits (e.g. frequent hand washing, lip licking)
An 8-year-old girl presents with an acute, extremely pruritic eruption of edematous and vesiculated, irregularly shaped papules and plaques on the face, arms and legs that developed the day after playing in the park. She has experienced similar but milder episodes in the past. Which of the following is the most appropriate treatment?

A  Diphenhydramine cream
B  Loratadine
C  Pramoxine cream
D  Prednisone
E  Hydrocortisone cream
Pyogenic Granuloma

- Exophytic, often pedunculated vascular papule
- Friable, tend to bleed like crazy!
- Send to dermatologist for removal via curettage
What is the most likely cause of this 8-year-old boy’s patchy hair loss?

A  Alopecia areata
B  Seborrheic dermatitis
C  Tinea amiantacea
D  Tinea capitis
E  Trichotillomania
Tinea Capitis

‘Black dots’ = short broken hairs
Tinea Capitis: Inflammatory Reactions

Kerion: boggy inflamed plaque studded with pustules

Inflammatory tinea faciei due to *Microsporum canis*

‘Id’ reaction of pruritic eczematous papules on neck and upper trunk upon starting antifungal therapy
Tinea Capitis

- *Trichophyton tonsurans* (~95%) >> *Microsporum canis* in US

- Favors prepubertal children
  - Predilection for those of African descent
  - *Always* consider in school-age child with scaly scalp
  - Posterior cervical lymphadenopathy often present

- Treatment
  - Requires **ORAL** antifungal agent: griseofulvin x 6-8 wks or terbinafine x 4 wks
  - Perform fungal culture prior to initiating therapy
  - Antifungal shampoo (patient and household contacts) to prevent spread, fomite control
Seborrheic dermatitis: *caveat* – tinea capitis can mimic ‘Tinea’ amiantacea: variant of seborrheic dermatitis with thick concretions
Alopecia Areata

- Hair-specific autoimmune disease
  - Lifetime prevalence of ~2%
  - Increased incidence of other autoimmune conditions in patients/their families

- Discrete round to oval areas of complete hair loss
  - Short ‘exclamation mark’ hairs (tapered proximal end)
  - Usually no scale or lymphadenopathy

- Hair frequently regrows spontaneously
  - Unpredictable course
  - Rare progression to alopecia totalis/universalis

- Treatment options
  - Topical (high potency) and intralesional corticosteroids
  - Topical irritants and immunotherapy
Trichotillomania

- Hair pulling/plucking by patient
  - Scalp hair, eyebrows, and/or eyelashes

- Most often affects 5- to 12-year-old girls
  - Different from self-limited hair pulling ‘phase’ in infants/toddlers (boys>girls)

- Irregularly shaped areas of hair loss
  - Often contain hairs of varying lengths

- Behavioral modification therapy can be effective
Telogen Effluvium

• Period of excessive shedding of normal telogen hairs
  – _DIFFUSE_ pattern of thinning

• Hair loss begins 2-3 months after precipitating event such as:
  – High fever/severe illness
  – Severe psychological stress

• Complete recovery expected