Starting From Scratch
Common Pediatric Dermatoses

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IMPETIGO CONTAGIOSA

- Both Staph aureus and Strep pyogenes
- Summer - trauma and insect bites
- Winter – URIs, AD
- Treatment
  - Oral - cephalexin, dicloxacillin, amoxicillin-clavulanate, erythromycin, cefaclor
  - Topical - mupirocin (Bactroban), retapamulin oint 1% (Altabax)
  - Soak off crusts – min change in resolution

Serum sickness-like Reaction to Ceclor

EM
**Bullous Impetigo**

- Always Staph aureus
- Epidermolytic toxin cleaves stratum granulosum
- Phage group II
- Same toxin as Staph Scalded Skin Syndrome
- Rx: Oral anti-Staph antibiotics

**Coxsackie Virus A6 Infection**

- 99% vesiculobullous and erosive eruption
- 61% - rash > 10% of BSA
- perioral, extremity, truncal
- classic HFMD areas - palms, soles, buttocks
- eczema coxsackium in sites of AD
- 37% Gianotti-Crosti like eruption
- 17% petechial /purpuric
- Delayed onychomadesis & periungual desquamation

*Pediatrics 2013;132:e149–e157*
Periorificial papules and erosions – looks like impetigo

**Lyme Disease**

- Multi-stage, multi-system disease
- Agent: *Borrelia burgdorferi*, Vector: *Ixodes* ticks
- Late spring to mid fall
- Erythema Migrans (previously ECM) in 80%
  - expanding, erythematous, round or oval areas
  - solitary or multiple, concentric rings
  - variable induration, pain, pruritus
- Untreated cases - arthritis, neurologic, cardiac, and ophthalmic complications

**Lyme Disease**

**Treatment**

- young children – amoxicillin
- older children/adults - doxycycline
**Tinea Corporis Pearls**

- Fungal infection of the superficial epidermis
- KOH wet prep for diagnosis
  - Scrape with edge of glass slide; not scalpel
  - Apply one drop Chlorazol Black E fungal stain
  - Place coverslip
  - Scan on low power with condenser at lowest point
- “If it’s scaly…scrape it!”
- Don’t get CLIaphobia

**Tinea Corporis Treatment Pearls**

- Topical azole* unless widespread
- Treat b.i.d. for 2 to 4 weeks
- Terbinafine, naftifine, butenafine, ciclopirox
  - Fungicidal
  - Second line
- Look for source

* clotrimazole, ketoconazole, miconazole, econazole
Pearl: recurrent tinea corporis may be caused by an undiagnosed tinea capitis

Granuloma Annulare

- Small, firm papules form annular plaque
- Skin-colored, dusky to violaceous
- No scale (epidermal, + dermal inflammation)
- Acral locations
- Necrobiosis (destruction) of dermal collagen
- Subcutaneous - deep nodules
- Periosteal – “bony” hard; over scalp, tibia
- No treatment, no associations, reassurance
Tinea Capitis

- Dermatophyte infection of the hair shaft
- Presentation
  - hair loss and/or multiple “black dots”
  - patchy areas of scale
  - lymphadenopathy
- Common in African-American children
- Usually caused by *Trichophyton tonsurans* (does not fluoresce)
Tinea Capitis

- Oral griseofulvin **20-25 mg/kg/day** in a single dose with fatty food
- Treat for 6 - 12 weeks
- Adjunctive use of selenium sulfide (Selsun Blue), ketoconazole, or ciclopirox shampoo may decrease fungal shedding
- Hair care practices has no effect on tinea capitis

Scalp Scaling in Prepubertal Children

- 300 children, 50%< 2 yrs., 50% 2-10 yrs
- 66 (22%) had scalp scaling
- <2 yrs - seb derm (SD) and AD
- 2-10 yr – nonspecific (fine, white), SD, AD
- 3% FCx pos for dermatophyte (AA, T tons)
- 53% - head and neck lymphadenopathy

*Kerion*

- Boggy, highly inflammatory reaction
- Bacteria may be cultured (*Staph*)
- Treatment
  - Griseofulvin – same as for tinea capitis
  - Prednisone (1-2mg/kg/day) for ~5 days
  - Oral antibiotics +/-
Id reaction (dermatophytid)

Id Reaction
Distinguish from Drug hypersensitivity Urticaria

- Edematous, erythematous papules
- Lineup along hairline, postauricular,
- Atopic dermatitis distribution

TINEA VERSICOLOR
- Malassezia furfur (Pityrosporum orbiculare)
- More common in adolescents and adults

Treatment
- Selenium sulfide solution/shampoo-apply and rinse
  - 1% OTC - overnight
  - 2.5% Rx - 20 minutes
- Imidazole antifungal creams bid x 1-2 weeks
- Ketoconazole 400 mg P.O. in a single dose, may repeat in one week

Hypopigmented, slightly scaly patches

spaghetti
meatballs
SCABIES

**DIAGNOSIS**
1. History of intractable itching
2. History of possible exposure
3. Character and distribution of lesions
4. Microscopic exam of skin scrapings

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SCABIES

**In Older Children**

Distribution – “think soft skin”
- anterior axillary lines
- inner aspect of upper arms
- areolae
- penis
- wrists and interdigital webs
- ankles

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SCABIES

**Infants**

- Diffuse eczematous dermatitis
- Frequently involves entire cutaneous surface (face, palms, soles)
- Inflammatory nodular lesions of axillae / diaper area of very young
- Burrows, papules, vesicles and pustules
SCABIES TREATMENT

- 5% permethrin cream (Elimite)
  - Total body in infants and older children
  - Don’t recommend neck to toes
  - 8-14 hour (overnight); repeat in 7 days
- Ivermectin (Stromectol)
  - 2nd line, 200 mcg/kg, repeat 1 week
- Wash clothing / bedding >120°F next a.m.
- Treat all close contacts
- Treat the “patient”
  - Moderate potency topical steroids x 2 weeks

Louse: 6-legged, wingless, translucent, 2-3 mm

Nits: white, ovoid, tightly adherent to hair shaft
**Head Lice**

**Myths vs Facts**

- Don’t affect only “dirty” individuals
- Not linked to poor hygiene or living conditions
- Don’t jump or fly
- Distance of nit from the scalp predicts duration of disease
  - Location of nit varies with temperature and humidity (1/4 – 6 inches)

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**Pediculosis Capitis**

**Head Lice**

- Symptoms
  - nocturnal pruritus
  - red macules on nape of neck and scalp
- Don’t spread any other disease, rare impetigo, malaise
- Transmission: head-to-head contact

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**Head Lice**

**Diagnosis**

- Combing vs Visual inspection
  - 4x more effective
  - 2x faster
- Combing hair with nit comb
  - Teeth spacing 0.2 – 0.3 mm
  - Wet hair may be more effective
- Procedure
  - Begin at scalp or ears
  - Insert louse comb at crown
  - Gently touches scalp
  - Draw firmly down, angle distally
  - Comb systematically at least twice
  - Examine comb after each pass
  - Usually 1 minute to find first louse
- Nurses out-perform MDS

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**Pediculosis Capitis**

**First-line Treatment**

- Lindane 1% is no longer recommended by AAP
- FDA-approved OTC
  - 0.3% pyrethrins (RID), permethrin 1% (Nix)
  - Apply to damp scalp 10 min and rinse
  - Repeat 7-10 days (best on day 9)
  - Apply 1:1 vinegar:H₂O₂, enzyme solution to enhance combing
  - Comb with metal nit comb
- Re-examination for live lice (nurse preferably) after another 8-10 days
- Cost ~$20 for 1-2 treatments

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**Pediculosis Capitis**

**Second Line Treatment**

- If live lice present after 2 OTC treatments
- malathion lotion 0.5% (Ovide®)
- Side effects: scalp irritation, dandruff, conjunctivitis, flammable until dries
- 7 days after the treatment 90% were lice free
- Application
  - To dry hair thoroughly wet hair and scalp
  - Allow to dry uncovered
  - Shampoo hair after 20 min – 8 hr, nit combing
  - Only repeat in 7-9 days if lice still present
- Supplied 2 oz bottles (1 application = $206)

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**5% Benzyl Alcohol Lotion**

**Ulesfia**

- FDA approved April 2009
- Kills head lice by asphyxiation w/o potential neurotoxic SE
- > 6 months of age
- 2 PC studies for FDA approval – 628 pts
- Two 10-minute treatments, 1 week apart
- 14 days after the treatment 75% were lice free
- SE: irritation of the skin, scalp, and eyes, application site numbness
- Avoid in premature infants - serious respiratory, heart- or brain-related adverse events
- Now available

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*Adapted from Guidelines for the Treatment of Resistant Pediculos is; 6/14/99*

*AAP Policy Statement. Head Lice Aug 2010*
Ulesfia Lotion Usage Guidelines

<table>
<thead>
<tr>
<th>Hair Length</th>
<th>Amount of Ulesfia Lotion/ Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>$41.59/8oz bottle</td>
</tr>
<tr>
<td>0 - 2 inches</td>
<td>4-6 oz (½-3/4 bottle)</td>
</tr>
<tr>
<td>2.4 inches</td>
<td>6.8 oz (¾ bottle)</td>
</tr>
<tr>
<td>Medium</td>
<td>8-12 oz (1-¼ bottle)</td>
</tr>
<tr>
<td>4-8 inches</td>
<td>12-24 oz (1½-3 bottles)</td>
</tr>
<tr>
<td>8-16 inches</td>
<td>8-24 oz (3-4 bottles)</td>
</tr>
<tr>
<td>Long</td>
<td>24-32 oz (3-4 bottles)</td>
</tr>
<tr>
<td>16-22 inches</td>
<td>32-48 oz (4-6 bottles)</td>
</tr>
<tr>
<td>&gt; 22 inches</td>
<td></td>
</tr>
</tbody>
</table>

Spinosad Natroba Topical Suspension 0.9%

- Insecticide
- FDA approved in 2011
- 4 years of age and older
- Contains benzyl alcohol (caution in infants < 6 months of age)
- 10 min application to scalp and hair
- Repeat in 1 week if live lice present
- 86% were lice free after treatment

Pediculosis Capitis

Third-line Treatments

- Ivermectin†
  - P.O.- 200 mcg/kg/dose x 1; repeat 1 wk for live lice (41% required 2nd dose)
- Oral Bactrim
  - Gram neg bacteria in lice GI tract
  - 10 day course p.o. (dose for A.O.M)
- Nuvo Lotion* Cetaphil Cleanser®
  - Apply to scalp, dry with hair dryer
  - Rinse out next day, repeat qwk x 3
  - Nit removal unnecessary
  - 90% cure
  - Suffocate the lice with hair drier

†Amer M. Pediatr Infect Dis J. 2010;29(11):991-93

School Exclusion

- “No nit” policies for return to school should be abandoned per AAP policy statement 2010.
- Losses estimated at $1 billion/yr
- School exclusion not recommended by American Public Health Association
- In 1998, 50% of US school nurses would not allow a child with nits back into school
- Infestation present weeks before detection
- 75% with nits alone are not infested

This boy developed these itchy papules after returning from a trip to a popular Southeastern resort area.

He continues to get them 2 months later.
**Bed Bugs**

- Diminishing since mid 20th century, DDT
- Rapid resurgence last 2 decades
  - Travel, resistance
- NYC health dept 6.7% (400,000) reported bedbugs in last 12 months
- Orkin receives hundreds of calls daily
- Found in hotels, homes, dorms, theaters, clothing stores, vehicles, schools, daycare
- The Met at Lincoln Center in NYC
- Sleep-overs for children

**Bed Bugs’ Life**

- Survival
  - Active through temperatures 7 - 45°C
  - Long durations without food or water
- Feeding
  - Mostly at night unless ravenous
  - Travel 5-20 feet to reach their host
    - Body temperature
    - CO2
  - Feed every 3-5 days for ~4-10 minutes
  - After feeding return to their hiding places

**Bed Bug Bites**

- Bites are asymptomatic
- Saliva
  - Anesthetic
  - Nitrophorin → nitric oxide → local vasodilation
  - Anticoagulant – inhibits factor X
  - Apyrase – inhibits ADP-induced platelet aggregation
  - Triggers allergic reaction – pain, itch, anaphylaxis

**Diagnosis**

- Erythematous wheals followed by firm red papules +/- hemorrhagic central punctum
- +/- Bullae
- Wheals up to 20mm
- Papules up to 3 cm
- Exposed parts – head, neck, arms, shoulders
- May take 14 days to appear at first
Diagnosis

- Rarely in axillae or popliteal fossae
- Linear lesions – “breakfast, lunch and dinner”
- Patients with papular urticaria often have specific IgE Abs to bed bug proteins
- Bites resolve in 1-2 weeks without treatment
- Most people will develop sensitivity to the bites over time


Bed Bug Treatment

- Limited evidence-based data available
- Empirical treatments for bite reactions
  - Simple hygiene
  - Topical and oral corticosteroids
  - Antihistamines
  - Antibiotics
- No interventions to eradicate bed bugs or prevent bites identified in studies
- Prevention is key

JAMA. 2009;301(13):1358-1366

WARTS

- Human papilloma virus (HPV)
- Verrucae vulgaris, plana, plantaris, and condyloma acuminata
- Highest incidence in 10-19 y/o
- 25% disappear in 3-6 months
- 70% of primary wart gone in 2 years
- 32% wart free in 2 years
WART THERAPY

- Ignore
- Topical salicylic acid in collodion hs with paring
- Cryotherapy with liquid nitrogen or dimethyl ether and propane
- Duct tape – apply for 6.5 days/week
- Heat therapy / ultrasound
- Pulsed dye laser* / CO2 laser
- Imiquimod cream – TLR-7 agonist
  - Expensive; low efficacy esp for non genital areas
  - Aldara(5%), Zyclara (7.5%) 
- Immunotherapy (SADBE, skin test antigens)
- Oral cimetidine x 2-3 months still controversial

*Adapted from Tan OT, Lasers in Surg and Medicine, 1993, 15(27-37)

Molluscum Contagiosum

- Poxvirus infection of the epidermis
- Mistaken for varicella or vesicles
- Infectious (swimming lessons, fomites)… but benign
- 33% - inflamed, itchy, dermatitis >> infected
- Untreated lasts 2-48 months (avg 18 mo)
- STD in adolescents and adults
- Severe in HIV infected patients

Molluscum Contagiosum Treatment

- Tincture of time
- Office-based therapy (q 2 weeks)
  – Cantharidin (Blister beetle juice) application
  – Liquid nitrogen cryotherapy
  – Lacerate or lance with needle
  – Curettage
  – Candida Antigen intralesional injection
- Home treatments
  – Tretinoin (Retin-A) 0.025% gel with Q-tip qhs
  – Imiquimod 5% cream (Aldara) q.d to b.i.d.
  – OTI – ZymaDerm – q.d - homeopathic terpene oxides

ALLERGIC CONTACT DERMATITIS

Acute lesions - erythema, vesiculation, oozing
Chronic lesions - dry and lichenified

Common offenders
- Toxicodendrons - Poison ivy, oak, sumac (~80%)
- Metals - nickel (15-20%), cobalt
- Neomycin
- Preservatives and fragrances
- Shoes (chromates and rubber)
- Black henna tattoos (ppd)
• 15 y.o. male H.S. wrestler with oozing, eczematous plaque for several weeks
• unresponsive to antibiotics, antivirals and topical antifungal medications

Slightly hyper-hypo pigmented patch remains after 2 weeks of topical steroid treatment. Initially, it was an annular, KOH +, scaly patch. A new lesion is starting on the left cheek.
Dimethylglyoxime Nickel Test Kit
Nickel Alert - Detect

Athena Allergy, Inc.
PO Box 1294
Huntersville, NC 28070
704-947-1917
www.athenaallergy.com

Byer TE. Periumbilical allergic contact dermatitis: blue jeans or belt buckles?
Pediatric dermatology. 21(3):223-6, 2004 May-Jun.

Dimethylglyoxime
Positive test for Ni
Metal jean clasps 10%
Belt buckles 53%
CONTACT DERMATITIS
TREATMENT

• Topical steroids - moderate potency
• 2 week course of oral prednisone if widespread/facial
• May last for 1 to 3 weeks after exposure
• Identify allergen and avoid

STORK BITE

PORT-WINE STAINS

Capillary Malformations

• Caused by mutations in GNAQ
• Will not involute, does not proliferate/spread
• May darken and thicken become nodular w/ age
• May become significant, lifelong cosmetic and psychosocial problem
• Laser may be effective
Photos from Mulliken J. Vascular Birthmarks

Capillary Malformation “Port Wine Stain”
Pulsed Dye Laser Treatment

- response rate
  - variable
  - 65% - 75% complete to considerable response
  - multiple treatments (5-20 average)
  - child versus adult
  - improved response
    - anatomical site - forehead, lateral face, temple
    - geographic
- recurrences can occur
Spider telangiectasia

Pyogenic Granuloma
lobulated capillary hemangioma

- common < 5 y.o.
- face, upper body, fingers
- solitary, dull red, papules
- 5-6 mm
- rapid growth – later than IHs
- ulcerate - glistening surface +/- crusted
- bleed
- DDx
  - infantile hemangioma, wart, melanoma
- Rx – shave, send to path and electrodesiccation and curettage

Pyogenic Granuloma
lobulated capillary hemangioma

Infantile hemangiomas
Other vascular neoplasms
Capillary malformations
Lymphatic and other malformations
Other vascular lesions
Pyogenic granulomas
Telangiectasias

Yale Vascular Anomalies Clinic

Infantile hemangiomas
Other vascular neoplasms
Capillary malformations
Lymphatic and other malformations
Other vascular lesions
Pyogenic granulomas
Telangiectasias
Good Sun Sense

- Broad-rimmed hats
- Sunscreens SPF 15 or more (> 6mo)
- Tightly woven clothing
- Sun Guard by Rit® in wash (UPF 5–30)
- UV protective sunglasses
- Natural shade, limit midday exposure
- Avoid tanning beds – recent legislation banning <17 year olds from using tanning beds
- Spray on tans are safe but do not protect from UV

Evaluating Hair Loss in Children

Localized or Diffuse

Congenital or Acquired

Acquired & Localized Hair Loss

1. Alopecia areata
2. Trauma
   - Trichotillomania / Hair pulling
   - Traction alopecia
3. Tinea capitis

Alopecia Areata

- autoimmune disease
- rare associated diseases
  - atopy, thyroiditis, vitiligo, pernicious anemia
- CD4+ lymphocytes surround hair follicle
- unknown triggers
- most cases are temporary
- > 90% of discrete patches resolve in 2 years

Alopecia Areata

CLINICAL FINDINGS

- discrete patches of hair loss
  - isolated oval patches
  - ophiasis (marginal)
  - diffuse
- nonscarring with normal-appearing scalp
- nail pitting in 10-50%
- severity
  - remain localized (alopecia areata)
  - loss of entire scalp (alopecia totalis)
  - loss of all body hair (alopecia universalis)
Exclamation Point Hairs

- Short (< 1/4") pigmented hairs at periphery
- Tapering of the proximal hair shaft
- Due to production of smaller, broken hairs
- Represents areas of active loss

Alopecia Areata

**HISTORY**

Worse prognosis associated with
- Disease present > 1 year or young age at onset
- Positive family history of AA or atopy
- Extensive involvement
  - Especially ophiasis pattern or alopecia totalis
- Down syndrome

Trichotillomania

Angular/geometric shapes or borders
Linear lesions
Incomplete loss
Hairs of varying length
Perifollicular petechiae and excoriations
Broken / twisted hairs
No scale

Hair Pulling

“Splitting Hairs”

1. Acute hair pulling associated with stress
2. Trichotillomania (OCD)
3. Hair pulling associated with other psychiatric disorders

Traction Alopecia

Hair thinning in particular areas
Follicular papules
Very few fractured hairs
Hair shafts smaller in diameter
Hair care / style
R/O child abuse

RX: Education, discontinue trauma
PILOMATRICOMA

Pilomatricoma
Calcifying Epithelioma of Malherbe

- Benign adnexal tumor from hair cortex
- Rock-hard, bluish, “tent sign” 2 mm -1 cm nodule
- Face > extremities
- 10% of all skin nodules/tumors in childhood
- Most asymptomatic, inflammation in some
- Spontaneous regression not reported
- Surgical excision, recurrence < 5%
- Familial 13.3% occurrences*
- Multiple 26.7%
  - Rubinstein-Taybi, Turner, Gardner syndromes