AMERICAN COLLEGE OF EMERGENCY PHYSICIANS
SCIENTIFIC ASSEMBLY
1999

Pediatric Rashes

Using a case presentation format, the lecturer will address a variety of pediatric rashes, from the classic common exanthems to the more unusual life-threatening cutaneous disorders. Examples of the disorders to be discussed include measles, varicella, roseola, Kawasaki's disease, impetigo, and staphylococcal scalded skin syndrome.

- Differentiate between rashes in children that are benign and those that may indicate life-threatening illnesses.
- Discuss the different treatment choices for various pediatric rashes.

WE-123
Wednesday, October 13, 1999
8:00 AM - 9:55 AM
Room # N219
Las Vegas Convention Center

FACULTY

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PEDIATRIC RASHES IN THE EMERGENCY DEPARTMENT

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Course Objectives:

1. Differentiate between benign rashes in children and those that may indicate serious illnesses.
2. Discuss the different treatment choices in a variety of pediatric rashes.

I. Localized problems

A. Impetigo

1. It's the most common primary skin infection in children. [1]
2. Superficial bacterial infection of epidermis; vesiculo-pustular eruption which weeps and forms honey-colored crusts.
3. Causative agents are *S. aureus* and *S. pyogenes,* rarely others. [1]
4. It frequently starts under the nose and spreads by autoinoculation to other body parts.
5. **Therapy**: Advocate gentle scrubbing of crusts.
   Antibiotics: Erythromycin still first choice unless area of high S. aureus resistance. Cephalexin or Cefadroxil also still first line-consider cost, compliance.
   Topical treatment with mupirocin for localized areas, Use it BID for 7-14 days.
6. If nephrogenic strains of strep in community, be alert for nephritis.

B. Bullous Impetigo

1. It's caused by certain phage type II staph.
2. See thin walled pustules and flaccid bullae; after rupture an erythematous base with peeling rim is left.
3. It can spread rapidly, especially in neonates.
4. **Therapy**: Oral anti-staph meds, i.e. dicloxicillin. Consider hexachlorophene scrubs; inquire about lesions in family members.

C. Atopic Dermatitis

1. Dry, pruritic skin can be erythematous, papular, edematous and crusted; chronically becomes lichenified and hyper pigmented.
2. No sharp margins as it merges into skin around it.
3. Common illness, estimate of 10% of children, with marked impact on health care; affects all races, Asians with higher susceptibility. [6]
4. Presents by 5 years in 85% of those affected, [6] males and females equal.[9]
5. Patient usually has family or personal atopy history, asthma prevalent.
6. Young infants : starts on cheeks and forehead.
7. Older infants and pre-schoolers : see it on extensor surfaces of arms / legs.
   a. Usually presents after 2 months of age, before 2 mos. it's seborrhea
8. Older children and teens : on flexor surfaces and nape of neck also.

Diff. Dx. Seborrheic Dermatitis, Scabies, Contact Dermatitis,

Therapy: Must break the "itch-scratch cycle"

For dryness use moisturizers and avoid soaps.

For pruritus use antihistamines at nighttime!

Use topical steroids prn; suggest plastic wrap over severe areas at nighttime

Use oral antibiotics for 5- 10 days prn signs of infection or areas of bleeding (anti-staph and strep)

Consider short burst of po steroids if severe

Consider tar baths to decrease inflammation

Clip fingernails short

D. Tinea infections

1. Corporis- sharply circumscribed erythematous patch with scaly border, enlarges and get central clearing; usually on hairless areas of body

If dx unclear, consider scraping scale at edges and do KOH prep.

Therapy: Treat with either topical OTC or prescription creams of imidazole class or ciclopirox BID for 2-3 weeks and then continue 1-2 weeks after resolution noticed.[5]

Antifungal agent Terbinafine cream shown effective in kids, [3] but cost is factor. Now available OTC. Avoid combo preps with steroids.

Diff dx: Nummular Eczema (coin shaped eczematous patches 1-5 cm),
Granuloma Annulare
Lyme Disease (Erythema migrans lesion -one week post bite; 50% present with fever, fatigue, headache, stiff neck, myalgias, lymphadenopathy)
Urticaria
Erythema multiforme (early stages)
Bruise (bike handlebars etc.)

2. Capitis-more common in males, Afro-Americans; most commonly caused by *T. Tonsurans* which is nonfluorescent. Recent report of great increase of this in California. [2] It can be seen past puberty, is spread easily.
    a. Can present as very defined, well rounded plaque of alopecia
    b. Less defined patch of alopecia with "black dots" as hair shafts are broken above scalp surface
    c. Differentiate from seborrheic dermatitis; greasy yellow scales
    d. Most develop retroauricular or posterior cervical adenopathy [8]

Therapy: Microsize griseofulvin po 10 - 20 mg / kg / day X 4-6 weeks.
Ultramicrosize griseo po at 5- 10 mg / kg day X 4-6 weeks
(Consider giving only rx for 2-3 weeks and refill from PMD)
Results best if given with fatty meal (ice cream etc.)
Alternative rx is po ketoconazole, fluconazole.

Adjunctive rx: Shampoo scalp with selenium sulfide or ketoconazole shampoo twice per week to decrease spore shedding.
Children MAY go to school -NO need to wear cap!

Kerion: Hypersensitivity reaction to fungus: vesicles and pustules seen -NOT infected, NO antibiotics needed; **RX:** Griseo X 4-6 weeks . Prednisone at 1 mg / kg X1-2 weeks if severe tender
Advocate pulling off crusts with warm wash cloths

3. Cruris- seen mostly in adolescent males, humid weather; sharp margins
Therapy : Topical anti-fungal preps BID for 4-6 weeks

4. Tinea Pedis- Very UNCOMMON below puberty- some case reports recently due to new occlusive footwear.
Dry, cracked, peeling, itchy feet in kids is most likely eczema
Therapy: moisturizers, topical steroids etc.

5. " Tinea" Pityriasis Versicolor- Seen best on upper trunk in late summer; hypopigmentation or hyper pigmentation. Caused by *Malassezia furfur (P.ovale)* a yeast infection . Scaling, coalescent papules.
Therapy: a) topical selenium sulfide lotion or 1% shampoo with thin layer for 30 minutes for a week then q 3 months
b) topical Na thiosulfite (Tinver lotion) BID X 2-4 wks.
c) oral ketoconazole or itraconazole not yet approved for kids; For teens -200 mg ketoconazole X 3-5 days
d) Topical anti-fungals for limited areas
e) warn parents that repigmentation may be delayed after rx! also, reoccurrence is common

E. Granuloma annulare

1. Mimics tinea corporis dorsum of hands / feet usually asymptomatic; no scales are seen!
2. No known cause; resolves spontaneously 90%of time, [5] steroids if disfiguring.
3. Highest incidence in 3-6 years of age.

F. Folliculitis

1. It can mimic early tinea capitis, with erythema and pustules in crops on scalp.
   Therapy: Gentle cleansing, release of hair, topical antibiotics; occasionally po meds for staph aureus
2. Traction alopecia- seen when chronic tension placed from braids, cornrows etc. Advocate releasing hair periodically to avoid this.

G. Molluscum Contagiosum

1. Crops of pearly umbilicated papules ;viral (pox) etiology, can become unsightly.
2. It's contracted by direct contact or autoinoculation.

Therapy: Either curettage or benign neglect! Our job is to identify and refer.

II. Generalized rashes and infections

A. Pityriasis rosea

1. A papulo-squamous eruption seen mostly in adolescents and young adults.
2. The "herald" patch only occurs 3/4 of time-not always seen.
3. Lesions run parallel to skin cleavage lines; evergreen tree pattern, typically on trunk and extend to arms; can be limited to groin area
4. Pruritus is major complaint-usually lasts 4-9 weeks; etiology ? Herpesvirus 7

Therapy: Reassurance, anti-histamines, oatmeal baths, etc. Consider check RPR.

B. Scabies

1. Spread by close personal contact, rarely by clothing.
2. Eruption of diffuse or localized papules with intense pruritus, especially night.
3. Burrows infrequently seen; vesicles from sensitization occur 4-6 weeks later.
4. Can become secondarily infected or get eczematous changes.
5. Keep index of suspicion high-can easily be overlooked!
6. Wash bedding, clothing at high temp for five minutes; store them for one week.

Therapy: Apply lotion / cream over entire body. Treat whole household! Permethrin (Elimite [R]) widely used, apply 8-12 hours once per week for two weeks ; 10% crotamiton (Eurax [R]) applied BID X 5 days - only 3/4 success

Lindane (Kwell [R]) not for infants, pregnant women ? Good for others.
Add anti-histamine for pruritus which may last one month.
Consider using topical 2.5% hydrocortisone lotion, advocate oatmeal or Aveeno[R] baths. Treat entire household!

C. Lice / Pediculosis
1. Look closely for nits in hair of scalp or groin; check family members.
2. Nits must be removed- use fine tooth nit comb.
Therapy: Vinegar two step rinse
Nix- permethrin 1% cream rinse, Rid- pyrethrin shampoo
Clothing and bedding wash in hot water, dry in hot air
3. Pruritus, which is main initial symptom, may last for weeks after treatment.

D. Erythema multiforme
1. Begins with flat macule then target / iris lesion individually then coalesce. Faint bluish discoloration often seen on legs.
2. Usually no distinct etiology, preceding viral (herpes simplex), drugs (cefaclor) etc. implicated.
3. Beware of oral or genital lesions bullae; take low key approach to inform about Stevens-Johnson syndrome.
4. It can be misdiagnosed as urticaria at the outset.
Therapy: Reassurance, anti-histamines if pruritus, use of steroids for EM to decrease pruritus controversial; only helpful if begun early.

E. Erythema nodosum
1. Exquisitely tender erythematous plaques on anterior tibias are the hallmark.
2. It's seen in conjunction with many other problems; strep #1, consider TB.

F. Staph Scalded Skin Syndrome / Toxic Epidermal Necrolysis
1. Both uncommon in children, SSSS associated with certain phage Type II staph infections in kids under 5 producing toxin.
2. In SSSS, fluid loss and secondary infection limited due to most of protective epidermis intact.
3. Usual site of staph is nasopharynx; begins as generalized erythema.
4. Desquamation and positive Nikolsky sign seen in both.
5. TEN occurs s/ p drugs; sloughing of entire epidermis seen.

G. Kawasaki's Disease
1. Males affected 1.5 to females; most under 5 years of age. [4]
2. Criteria: Fever X 5 days, conjunctival injection, erythematous oropharynx and lips, polymorphous erythematous exanthem, (maybe EM like) cervical nodes, erythema / edema of palms, soles; subsequent desquamation of digits near nails.
3. Lab help: ESR, CRP, platelet count all high.
4. Incidence highest in Asians.

5. Etiology: May be staph and strep infections producing exotoxins! [4]
6. Concern: Coronary angiitis and coronary artery dilation.

Therapy: IGIV-with single dose of 2 g / kg in 12 hours as inpatient.
Aspirin at 80-100 mg / kg / day during fever duration, up to two weeks.

H. Scarlatina (scarlet fever)

1. Diffuse fine papular erythematous sandpaper like rash, circumoral pallor, and "strawberry" tongue from denudation are the hallmarks.
2. Increased erythema in inguinal / antecubital fossa (Pastia's lines) are uncommon but characteristic..
3. Strep usually from pharyngeal infection, can be from cutaneous.
4. Some viral exanthems may mimic this; I usually rx with antibiotics clinically.

I. Roseola infantum (exanthem subitum, Human Herpesvirus 6)

1. Rash is preceded by high fever of 3-5 days, as child looks "good"; benign febrile seizures 10-15% of time with this in children prone to BFS.
2. When fever subsides, rash appears as rose-pink maculopapular eruption first on trunk. Rash subsides after 1-2 days.
3. Periorbital edema can be seen also. NO therapy needed!
4. Etiological agents identified as both human herpesvirus 6 and 7.

J. Fifth's disease (erythema infectiosum, Parvovirus B-19)

1. Very contagious especially in school aged children, peaks in spring.
2. Intense erythematous patches of cheeks are the hallmark.
3. Besides "slapped cheek" appearance, erythematous maculopapular eruption on extensor surfaces of arms, with lacy reticular pattern.
4. When rash erupts, child is not contagious. If pregnant female exposed, those acquiring infection during 2nd trimester have slight increase risk fetal death.

K. Rubeola (measles)

1. Outbreaks in USA prompted immunization changes at decade's start; now mandatory two dose schedule.
2. New outbreak in May 1996 in Northwest states.
3. Clinical manifestations: Maculopapular eruption begins on face and spreads inferiorly; this follows 3-4 days of cough, fever, coryza, conjunctivitis. Koplik's spots (rarely seen) precede the rash.
4. Dramatic decline in USA overall in late 1990's.

L. Rubella (German measles)

1. Rose-pink maculopapular eruption but fade much quicker.
2. Lower temp, posterior auricular nodes are seen.

M. Non-specific Viral exanthems

1. MOST COMMON dx of exanthems in ED!!
2. Usually other viral symptoms occur; rashes can be macular, papular, or combos-but look like NO other category.
3. Kids all look well-parents need reassurance!

N. Infectious Mononucleosis
1. A widespread maculopapular eruption occurs on day 3-4 in 10-15%.
2. If ampicillin / amox given with mono-diffuse copper-colored m.p. rash.

O. Henoch-Schonlein Purpura (Anaphylactoid purpura)
1. Diffuse vasculitis, peaks at age 4-5 with increase in males.
2. Purpuric lesions from buttocks inferiorly 2^0 to gravity; but can be seen on extensor surfaces of arms, posterior auricular area.
3. Arthralgia in lower extremities, scrotal swelling, GI pain, cramps, vomiting, melena all seen. Nephritis can occur and progress to chronic.
4. Intussusception can occur in 3-5 % of the patients.

Therapy: May go home if no GI bleed, or nephritis. Steroids only for GI bleed. Assure good follow-up if discharge. Most symptoms are self limited.

P. Varicella
1. Oral anti-virals only recommended for chronic ill, older than 12 years.
2. Use of varicella vaccine recommended for all after 12 months of age unless child on high dose steroids or if immunocompromised.
3. Remember to advocate trimming and scrubbing fingernails.

Q. Petechial eruptions
1. ALWAYS think of meningococcemia; it can have slow or fulminant progression.
2. Stress petechiae-seen on head and neck after coughing, forceful emesis or after lumbar puncture done!
3. ITP-diffuse petechiae in otherwise well child; ADMIT if platelet count is less than 20K. Previous conventional wisdom was to admit all and do bone marrow aspiration. Recent studies suggest not mandatory.
4. RMSF-begins as maculopapular eruption on extremities and progresses to hemorrhagic rash; fever, headache, conjunctivitis with tick bite history

Therapy: Chloramphenicol and tetracycline (? Use under age 8)

III. Perioral Infections / Problems

A. Herpetic Gingivostomatitis
1. Vesicular eruption on anterior portion of mouth, tongue, gums, lips; Herpes simplex is causative.
2. Symptoms last 7-10 days with headache, nodes, fever, drooling, poor po.

Therapy: cool foods and fluids, reassurance, acetaminophen, Cautious with viscous xylocaine-just dab it! Consider swish with benadryl / maalox.

Consider anti-viral therapy if patient presents within 1st 48 hours (rare)
Topical antiviral creams not efficacious

3. Herpetic whitlow-HSV infection of digit-auto-inoculation; NOT superinfected, NO antibiotics necessary, symptomatic measures only!

B. Coxsackie virus
   1. Vesicles in posterior portion of pharynx; usually 1-3 on uvula, soft palate cause **painful** pharyngitis with fever, dysphagia for 5-7 days (peak 2-3)
   2. Aphthous ulcers are bigger, on anterior aspect of buccal mucosa.
   3. Hand-foot-mouth disease usually seen in epidemics in summer. Mouth vesicles tend to ulcerate, ones on feet near heel margins.

C. Oral Candidiasis
   1. Common in infants, rare after 9-12 months-white or cream colored plaques on mucosa.
   2. It's often seen with concomitant diaper infection.

   Therapy: Oral mycostatin, 1 cc each cheek QID after feeding
   Clotrimazole oral troches not approved under 3 years of age
   Warn about "ping pong" effect with bottles or pacifiers
   Consider refill on meds-often takes 1-2 bottles

D. Popsicle panniculitis
   1. This occurs after prolonged cold contact in infants to buccal mucosa An indurated discolored non-warm area will result; NO therapy.

IV. Diaper Dermatitis

A. General Information
   1. It's the most common rash in childhood; peak between 9-12 months
   2. Three main types: those related to wearing diapers, those made worse by diapers, those not in area of diapers.
   3. They should be easy to dx but often not; due to overlap, prior rx.
   4. Ask about recent change in diapers, wipes etc, in history.

B. Chafing or Irritant Dermatitis
   1. Most common type overall-used to be called ammoniacal, maybe less in breast fed babies.
   2. Erythema and papules along convex surfaces; creases usually spared.

   Therapy: Advocate more frequent diaper changes, decrease moisture, use super absorbent diapers, prevent it with petroleum jelly or zinc oxide.
   Consider using mild 1% hydrocortisone for few days if intensely inflamed.
   If rash persists > 3-4 days, consider it superinfected with *Candida* and treat accordingly.

Avoid combo preps, fluorinated steroids.

C. Monilial dermatitis

1. Intense erythema in thigh creases and pubis with sharp margins. When satellite papules and pustules extend to leg with abdomen dx is easier.
2. Oral candidiasis often seen in conjunction with it.

Therapy : Use topical antifungal or anti yeast preps; avoid potent steroids but consider alternating with 1% hydrocortisone to hasten course.
Oral meads may help in recurrent cases.

D. Seborrheic dermatitis

1. You see a confluent jacket-like fiery red plaque; known as intertrigo elsewhere.
2. Greasy yellow scales are typical with the erythematous patches, non -pruritic.
3. Scalp involvement is common (cradle cap); both areas need rx!
4. It may be associated with *Pitysporum ovale* infection; consider anti-fungal preps if it's longstanding.

Therapy : Shampoo scalp with OTC preps with sulfur and salicylic acid, consider Ketoconazole 2% shampoo; mild 1% hydrocortisone for diaper area

E. Perianal Streptococcal Dermatitis

1. Group A Strep can cause a perianal dermatitis with signs of erythema, pruritus, rectal pain, and blood streaked stools.
2. Affects boys greater than girls from age 7 month to 10 years, peaks in pre-school years.
3. Majority will have strep pharyngitis, though most are asymptomatic.[7]

Therapy: Treat with penicillin or with cepaholosporin / macrolide for failures.
Diff. Diagnosis: Pinworms, fungal
Always consider child abuse with any vesicular or wart like rash.

BIBLIOGRAPHY

1. Darstadt Gary: Oral Antibiotic Therapy for Uncomplicated Bacterial Skin Infections In Children. *Ped. Infect. Dis. J.* 1997; 16:227-40

2. Lobato MN, Vugia DJ, F IJ: Tinea Capitis in California Children: A Population -based

Study of a Growing Epidemic. *Pediatrics* 1997; 99: 551-554

BIBLIOGRAPHY (con't)

3. Bakos L, Brito AC, Castro LC et al: Open clinical study of the efficacy and safety of Terbinafine cream 1% in children with tinea corporis and tinea cruris. *Ped. Infect. Dis. J.* 1997; 16:545-548

4. Resnick SD: New Aspects of Exanthematous Diseases of Childhood. Derm Clin NA Vol. 15 No.2 April 1997 pp.257-267

5. Nopper A, Markus R, Esterly N: When It's Not Ringworm: Annular Lesions of Childhood *Pediatric Annals* Vol. 27 No. 3 March 1998 pp.136-148

6. Hanifin, JM : Atopic Dermatitis in Infants and Children. *Ped. Clin. NA,* Vol. 38. No. 4 August 1991 pp. 763-789

7. Pride, HB : Pediatric Dermatoses Commonly Seen, Uncommonly Recognized. *Pediatric Annals*, Vol. 27 No. 3 March 1998 pp. 129-134

8. Stein, DH: Tineas-Superficial Dermatophyte Infections. *Pediatrics in Review* Vol. 19 No. 11 Nov. 1998, pp.368-372

9. Knoell KA, Greer KE: Atopic Dermatitis. *Pediatrics in Review* Vol. 20 No. 2 Feb. 99. pp.46-51

Pomeranz AJ, Fairley JA: Systematic Evaluation of the Skin in Children. *Ped Clin NA* Vol. 45, Number 1 Feb. 1998 pp.49-63

Edwards, Libby : *Dermatology in Emergency Care,* 1st edition, Livingston Inc. 1997

Hurwitz, Sidney : *Clinical Pediatric Dermatology* , 2nd edition, W. B. Saunders Co. 1993

1997 Red Book-Report of the Committee on Infectious Diseases 24 Edition, AAP

RASHES IN CHILDREN

OHIO BTLS SYMPOSIUM, October 30, 1998

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Course Objectives:

1. Differentiate between benign rashes in children and those that may indicate serious illnesses.
2. Recognize which rashes may be infectious and pose a risk to the pre-hospital provider.
3. Determine which rashes indicate the need for immediate treatment in the pre-hospital setting and what EMS providers should do.
4. Allow the pre-hospital provider to advise parents about seeking care for a condition if

the opportunity presents itself.

I. Localized problems

A. Impetigo

1. It's the most common primary skin infection in children. [1]
2. Superficial bacterial infection of epidermis; vesiculo-pustular eruption which weeps and forms honey-colored crusts.
3. Causative agents are *S. aureus* and *S. pyogenes*, rarely others. [1]
4. It frequently starts under the nose and spreads by autoinoculation to other body parts.
5. Therapy: Advocate gentle scrubbing of crusts, antibiotics.

B. Bullous Impetigo

1. It's caused by certain phage type II staph.
2. You see thin walled pustules and flaccid bullae; after rupture an erythematous base with peeling rim is left.
3. It can spread rapidly, especially in neonates.
4. Therapy: Oral anti-staph meds, Consider hexachlorophene scrubs; inquire about lesions in family members.

C. Atopic Dermatitis

1. Dry, itchy skin can be erythematous, papular, edematous and crusted; chronically becomes lichenified and hyperpigmented.
2. No sharp margins; it merges into skin around it.
3. Patient usually has family or personal atopy history.
4. Young infants : starts on cheeks and forehead.
5. Older infants and pre-schoolers : see it on extensor surfaces of arms / legs.
6. Older children and teens : on nape of neck also.

D. Contact Dermatitis

1. Rhus dermatitis- reaction to ivy, oak, sumac etc.; reaction to protein
2. Only 50 % of population affected
3. Initial treatment-copious irrigation; rash itself NOT infectious unless it infected secondarily from scratching.

E. Tinea infections

1. Corporis- sharply circumscribed patch with clear center and scaly border Commonly known as "ringworm".
2. Capitis-more common in males, Afro-Americans; most commonly caused by *T. Tonsurans* which is nonfluorescent. Recent report of great increase of this in California. [2] It can be seen past puberty.

Kerion: Hypersensitivity reaction to fungus-vesicles / pustules seen: NOT

infected

3. Cruris- seen mostly in adolescent males, humid weather; sharp margins
4. Tinea Pedis- Very UNCOMMON below puberty- some case reports recently due to new occlusive footwear.
   Dry, cracked, peeling, itchy feet in kids is most likely eczema
5. Tinea Versicolor- Seen best on upper trunk in late summer.

F. Folliculitis
1. It can mimic early tinea capitis, with erythema and pustules in crops on scalp.
2. It's often seen at sites of hair traction from braids etc. with traction alopecia.

G. Molluscum Contagiosum
1. See crops of pearly umbilicated papules ; viral etiology, can become unsightly.
2. It's contracted by direct contact or autoinoculation

II. Generalized rashes and infections

A. Pityriasis rosea
1. A papulo-squamous eruption seen mostly in adolescents and young adults.
2. The "herald" patch only occurs 3/4 of time-not always seen.
3. Lesions run parallel to skin cleavage lines; evergreen tree pattern.
4. Pruritis major complaint-usually lasts 4-9 weeks; no etiology, not infectious.

Therapy: Reassurance, anti-histamines, oatmeal baths, etc. Consider check RPR.

B. Scabies
1. Eruption of diffuse or localized papules with intense pruritis.
2. Burrows infrequently seen; vesicles from sensitization occur 4-6 weeks later.
3. Can become secondarily infected or get eczematous changes.
4. Keep index of suspicion high-can easily be overlooked!
5. This is EXTREMELY infectious! Wear gloves!

Therapy: Apply lotion / cream over entire body.
Permethrin (Elemite ^{R}) widely used, 10% crotamiton (Eurax ^{R})

C. Erythema multiforme
1. Begins with flat macule then target / iris lesion individually then coalesce. Faint bluish discoloration often seen on legs.
2. Usually no distinct etiology, viral drugs etc. implicated; not infectious.
3. Beware of oral or genital lesions bullae; take low key approach to inform about Stevens-Johnson syndrome.
4. It can be misdiagnosed as urticaria at the outset. Urticaria (wheals) seen as generalized allergic reaction -rash will come and go in different areas.

Therapy: Reassurance, anti-histamines if pruritis. IM benadryl with severe urticaria.

D. Erythema nodosum
1. Exquisitely tender erythematous plaques on anterior tibias are the hallmark.

2. It's seen in conjunction with many other problems; strep #1, consider TB.
3. Rash not infectious; child may need to be carried due to leg pain.

E. Kawasaki's Disease
1. Males affected 1.5 to females; most under 5 years of age. [4]
2. Criteria: Fever X 5 days, conjuctival injection, erythematous oropharynx and lips, polymorphous erythematous exanthem, (maybe EM like) cervical nodes, erythema or edema of palms,soles subsequent desquamation of digits near nails.
3. Incidence highest in Asians.
4. Etiology: May be staph and strep infections producing exotoxins! [4]
5. Concern: Coronary anigitis and coronary artery dilation; prevented by aspirin and immunoglobulin therapy. Early recognition imperative.

F. Scarlatina (scarlet fever- reaction to strep infection)
1. Diffuse fine papular erythematous sandpaper like rash, circumoral pallor, and "strawberry" tongue from denudation are the hallmarks.
2. Increased erythema in inguinal or antecubital fossa (Pastia's lines) are uncommon.
3. Strep usually from pharyngeal infection, can be from cutaneous.
4. Some viral exanthems may mimic this. It needs antibiotic therapy.

G. Roseola (exanthem subitum, Human Herpevirus 6)
1. Rash is preceeded by high fever of 3-5 days, as child looks "good"; benign febrile seizures 10-15% with this in children prone to them.
2. When fever subsides, rash appears as rose-pink maculopapular eruption first on trunk.
3. Periorbital edema can be seen also. NO therapy needed!

H. Fifth's disease (erythema infectiosum, Parvovirus B-19)
1. Very contagious especially in school aged children.
2. Besides "slapped cheek" appearanced, erythematous maculopapular eruption on extensor surfaces of arms.
3. When rash erupts, child is no longer contagious.

I. Rubeola (measles) viral
1. Outbreaks in USA prompted immunization changes at decade's start.
2. New outbreak in May 1996 in Northwest states.
3. Clinical manifestations: Maculopapular eruption begins on face and spreads inferiorly; this follows 3-4 days of cough, fever, coryza, conjunctivitis. Koplik's spots (rarely seen) precede the rash.

4. Both this and rubella (German measles) almost eradicated due to M-M-R X 2.

J. Non-specific Viral exanthems
   1. MOST COMMON dx of exanthems in ED!!
   2. Usually other viral symptoms occur; rashes can be macular, papular, or combos-but look like NO other category.
   3. Kids all look well-parents need reassurance!

K. Henoch-Schonlein Purpura (not infectious, etiology unknown)
   1. Purpuric lesions from buttocks inferiorly 2^0 to gravity; but can be seen on extensor surfaces of arms, posterior auricular area.
   2. Arthralgias in lower extremities, scrotal swelling, GI pain and cramps; rarely nephritis.

L. Petechial eruptions (Non-blanching tiny purple dots)
   1. ALWAYS think of menigococceima; slow or fulminant progression. If there is ANY chance of your exposure (especially respiratory) Talk to ED personnel ; you need prophylactic antibiotics X 2 days.
   2. Stress petechiae-seen on head and neck after cough, emesis or after LP!
   3. ITP-diffuse petechiae in otherwise well child; may need admit.
   4. RMSF-begins as maculopapular eruption on extremities and progresses to hemorrhagic rash; fever, headache, conjunctivitis with tick bite history

M. Varicella (Chicken Pox)
   1. Lesions are in different stages in same area at same time.
   2. Incubation period of 10-21 days after contact.
   3. Major problems in kids: secondary infection, very rare CNS problems. In adults: pneumonia
   4. Recent vaccine licensed for use can prevent it. Use of anti-viral drugs wthin 24-48 hours of symptoms can palliate and shorten the course. If parents ask your opinion, understand that these drugs do not alter course after 48 hrs.

III. Perioral Infections / Problems

A. Herpetic Gingivostomatitis
   1. Vesicular eruption on anterior portion of mouth, tongue, gums, lips; Herpes simplex is causative.
   2. Symptoms last 7-10 days with headache, nodes, fever, drooling, poor po.

Therapy: cool foods and fluids, reassurance, acetominophen.

B. Coxsackie virus

1. Vesicles in posterior portion of pharynx; usually 1-3 on uvula, soft palate cause painful pharyngitis with fever, dysphagia for 5-7 days (peak 2-3)
2. Apthous ulcers are bigger, on anterior aspect of buccal mucosa.
3. Hand-foot-mouth disease usually seen in epidemics in summer. Mouth vesicles tend to ulcerate, ones on feet near heel margins.

C. Oral Candidiasis
1. Common in infants, rare after 9-12 months-white or cream colored plaques on mucosa.
2. Besides giving oral mycostatin, warn parents about "ping-pong" effect of bottle or pacifiers.
3. It's often seen with concomitant diaper infection.

D. Popsicle panniculitis
1. This occurs after prolonged cold contact in infants to buccal mucosa An indurated discolored non-warm area will result; NO therapy.

BIBLIOGRAPHY

1. Darstadt Gary: Oral Antibiotic Therapy for Uncomplicated Bacterial Skin Infections In Children. *Ped. Infect. Dis. J.* 1997; 16:227-40

2. Lobato MN, Vugia DJ, F IJ: Tinea Capitis in California Children: A Population -based Study of a Growing Epidemic. *Pediatrics* 1997; 99: 551-554

3. Bakos L, Brito AC, Castro LC et al: Open clinical study of the efficacy and safety of Terbinafine cream 1% in children with tinea corporis and tinea cruris. *Ped. Infect. Dis. J.* 1997; 16:545-548

4. Resnick, SD: New Aspects of Exanthematous Diseases of Childhood. Derm Clin NA Vol. 15 No.2 April 1997 pp.257-267

Hurwitz, Sidney : *Clinical Pediatric Dermatology* , 2nd edition, W. B. Saunders Co. 1993
1997 Red Book-Report of the Committee on Infectious Diseases 24 Edition, AAP

NAME THAT RASH !

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A series of rashes will be shown depicting a variety of dermatological problems seen in children in emergency departments. The order of the rashes described in the handout do not necessarily match the order of the slides to be shown. Try to mark down your best estimation of the problem, why you made that decision, what therapy you would advocate, and what to tell the patient and family about its timecourse. The nature of the slide is indicated next to the number so you can refer back to it later and remember the visual nature of the problem. We will also review other rashes with each main slide in order to simulate differential diagnosis.

Your Diagnosis	Why this ? How describe it?	Therapy	Instructions

1. Single lesion on leg

2. Scalp problem

3. Lesions of legs

4. Body blotches

5. Diaper rash

6. Mouth sores

Your diagnosis	Why this? How describe it?	Therapy	Instructions

7. Trunk rash

8. Rash with fever

9. Petechial rash

10.Cheek rash

11. Vesicular rash

12. Itchy hands

13. Ugly bumps

14. Diffuse rash