Seeing Spots: Rashes in Children

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Disclosures

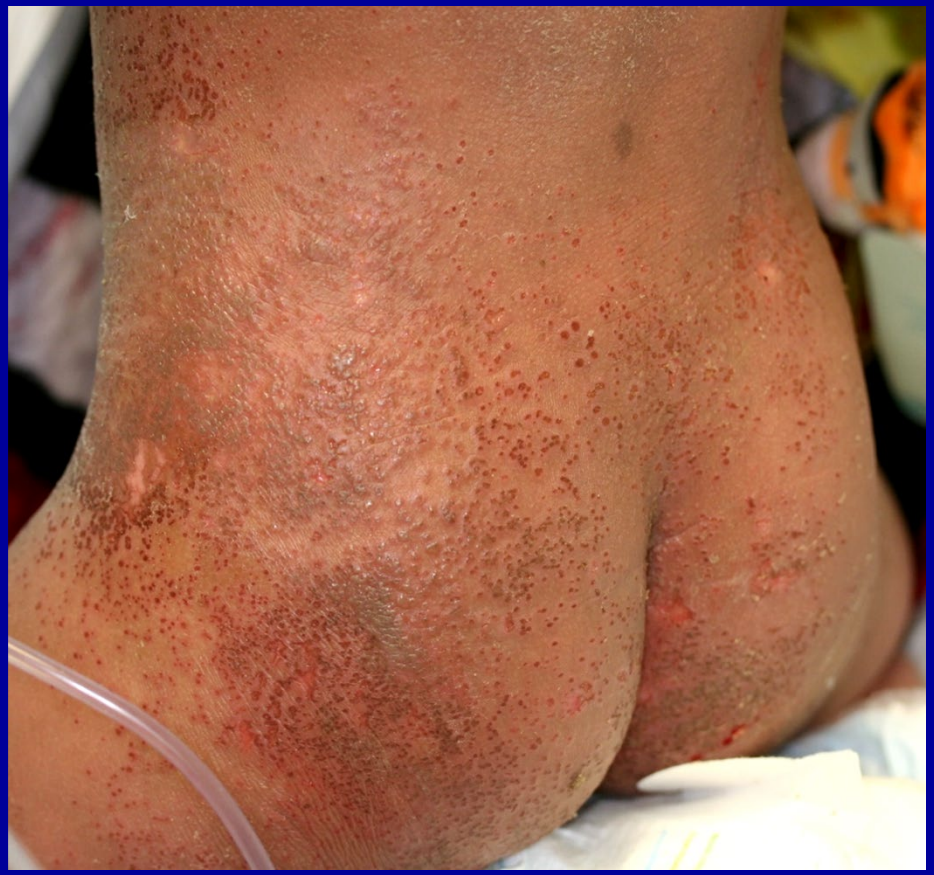
- No financial conflicts of interest.

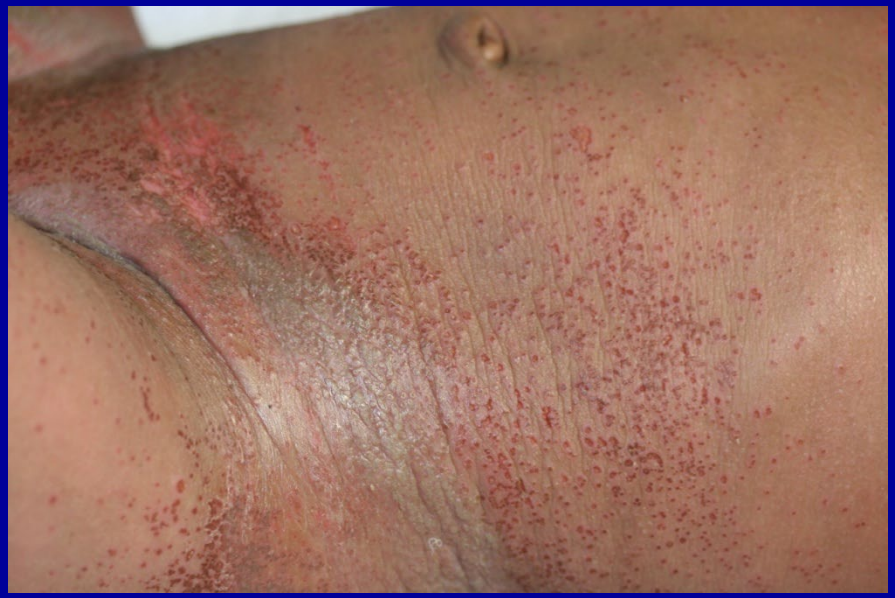
Learning Objectives

- Recognize features of several common skin conditions in children.
- Describe the features that support the correct diagnosis.
- Understand the recommended therapy for each condition.

Case #1

- 2 yr old female
- History of atopic dermatitis
- Flare worsening despite use of topical steroids
- Fever, malaise





What is the correct diagnosis?

a) Eczema exacerbation
b) Impetigo
c) Eczema herpeticum
d) Viral exanthem

Eczema Herpeticum

- HSV infection
- atopic dermatitis, other skin disease
- fever, malaise, widespread vesicles and erosions
- Complications: keratoconjunctivitis, bacterial superinfection, fluid loss

Eczema Herpeticum

- Diagnosis
  - History and physical appearance
  - HSV culture
  - Tzanck smear
  - DFA or PCR

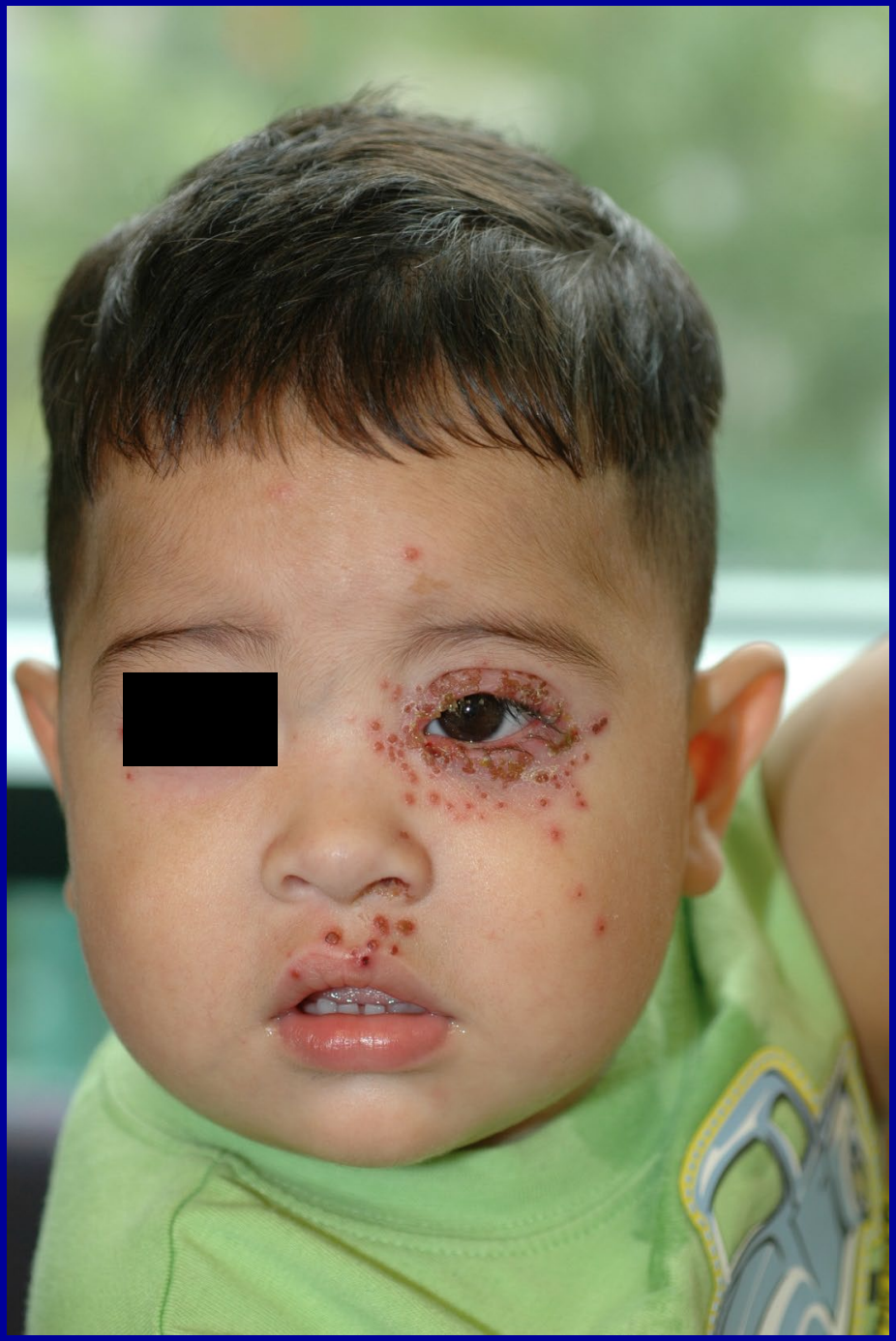
Eczema Herpeticum

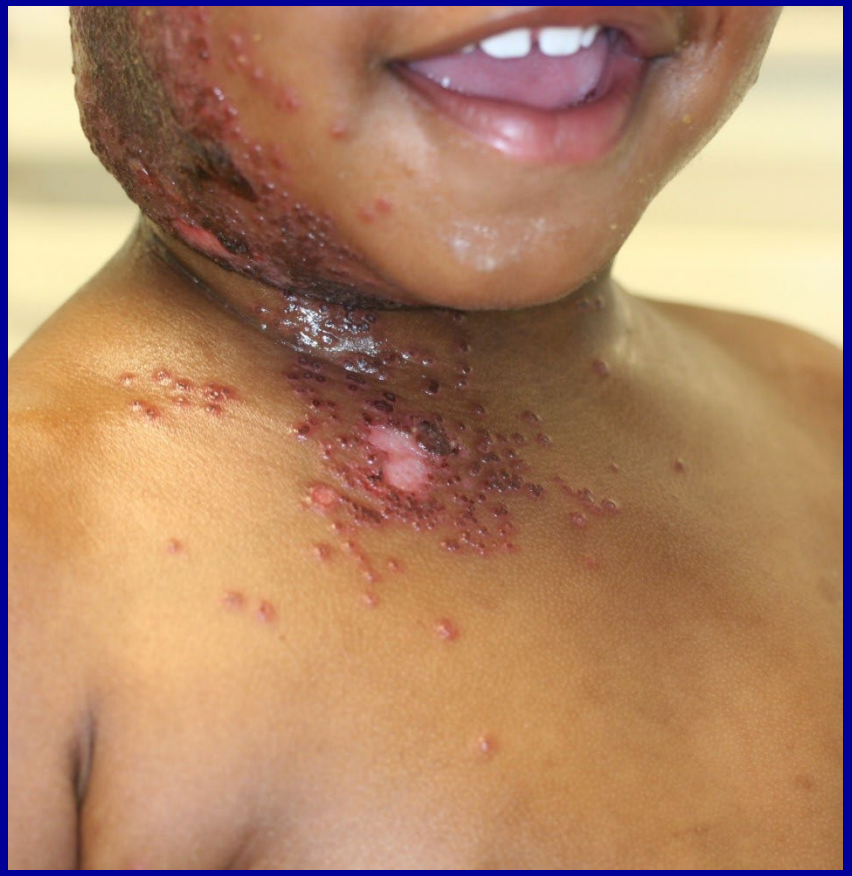
- Inpatient Management:
  - IV Acyclovir: 10 mg/kg/dose q 8 hr
  - antibiotic as indicated (bacterial cx!)
  - hydration, pain and fever control
- Outpatient management (po)
  - Acyclovir: 20 mg/kg/dose four times a day
    - Max dose = 800 mg four times a day

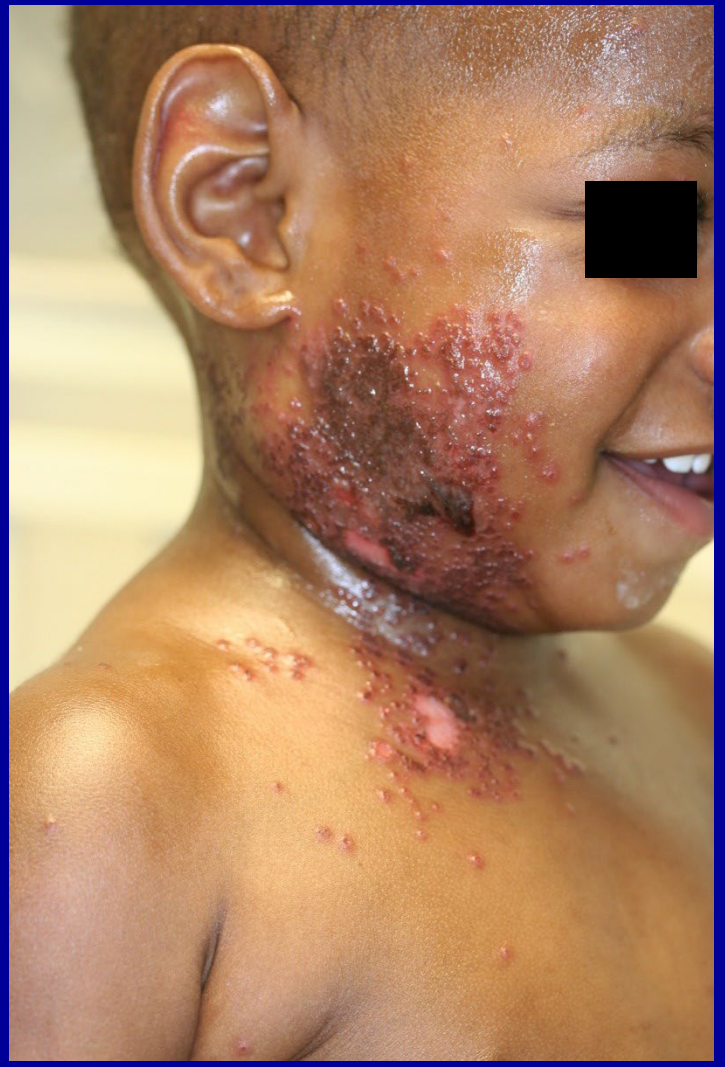
Eczema Herpeticum

- Topical
  - No topical steroids!
  - Domeboro's soaks
    - 10 min each bid-tid
  - Bland emollients

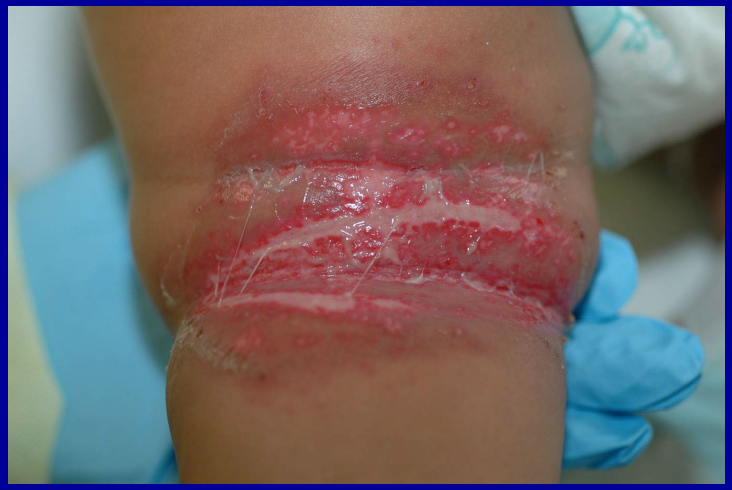
- Lesions on eyelids
    - OPHTHO consult!

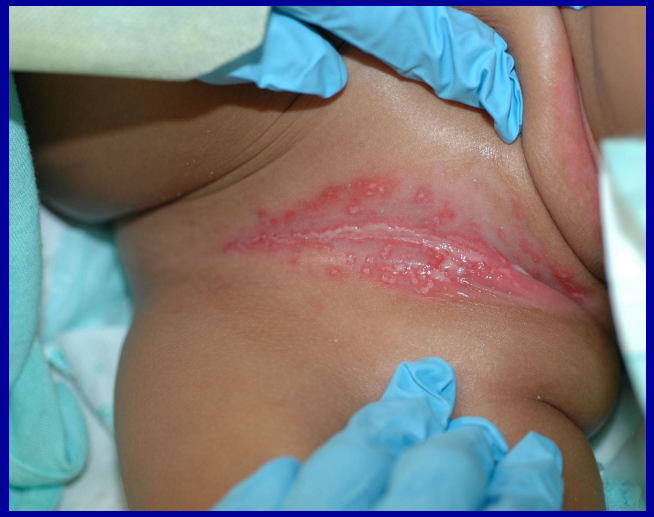




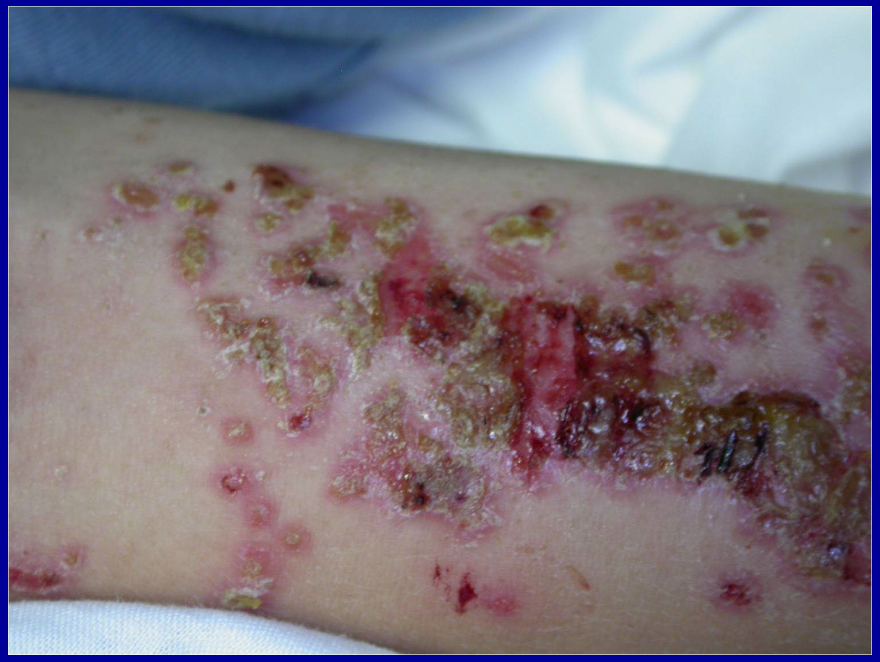


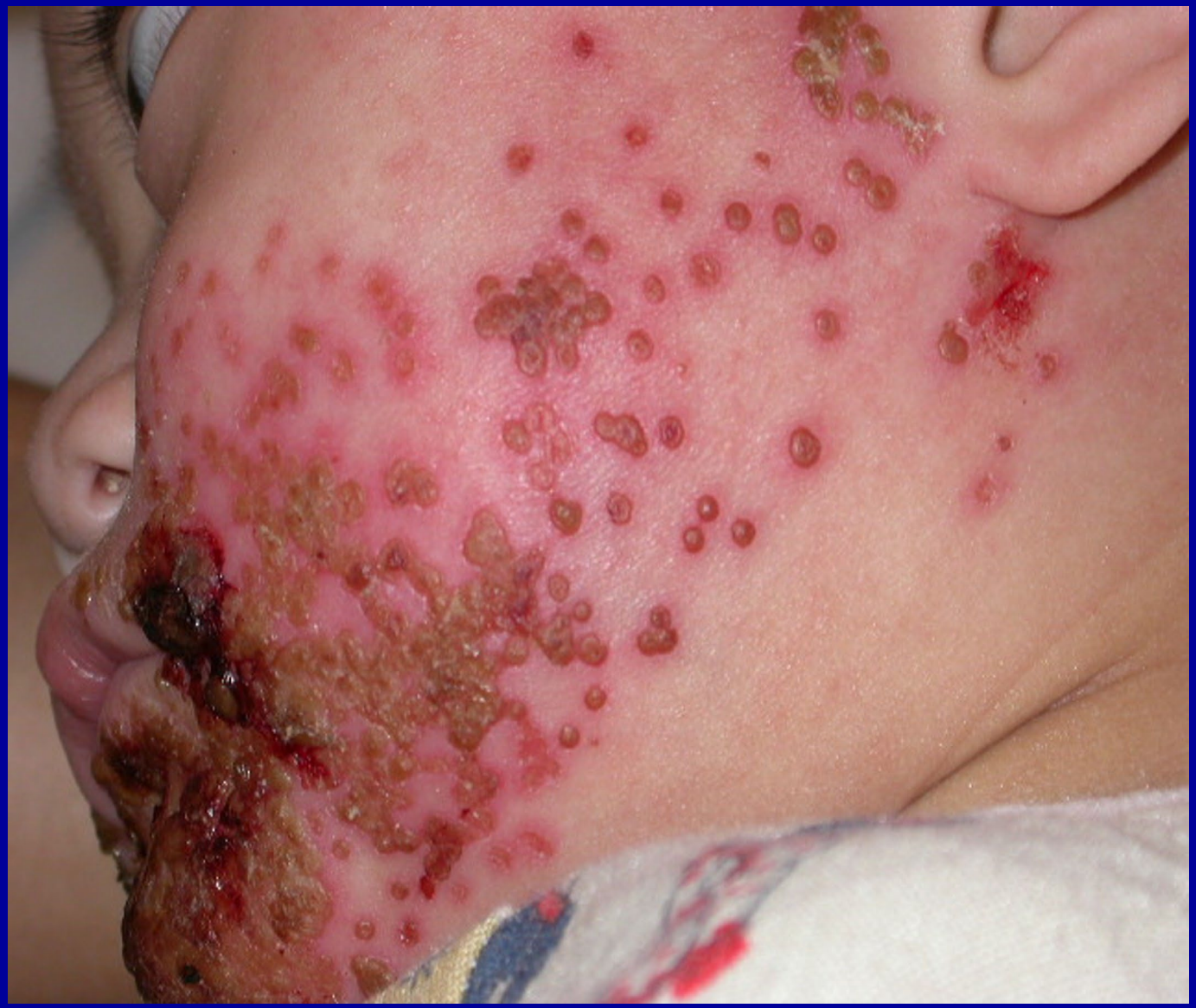
Cutaneous HSV





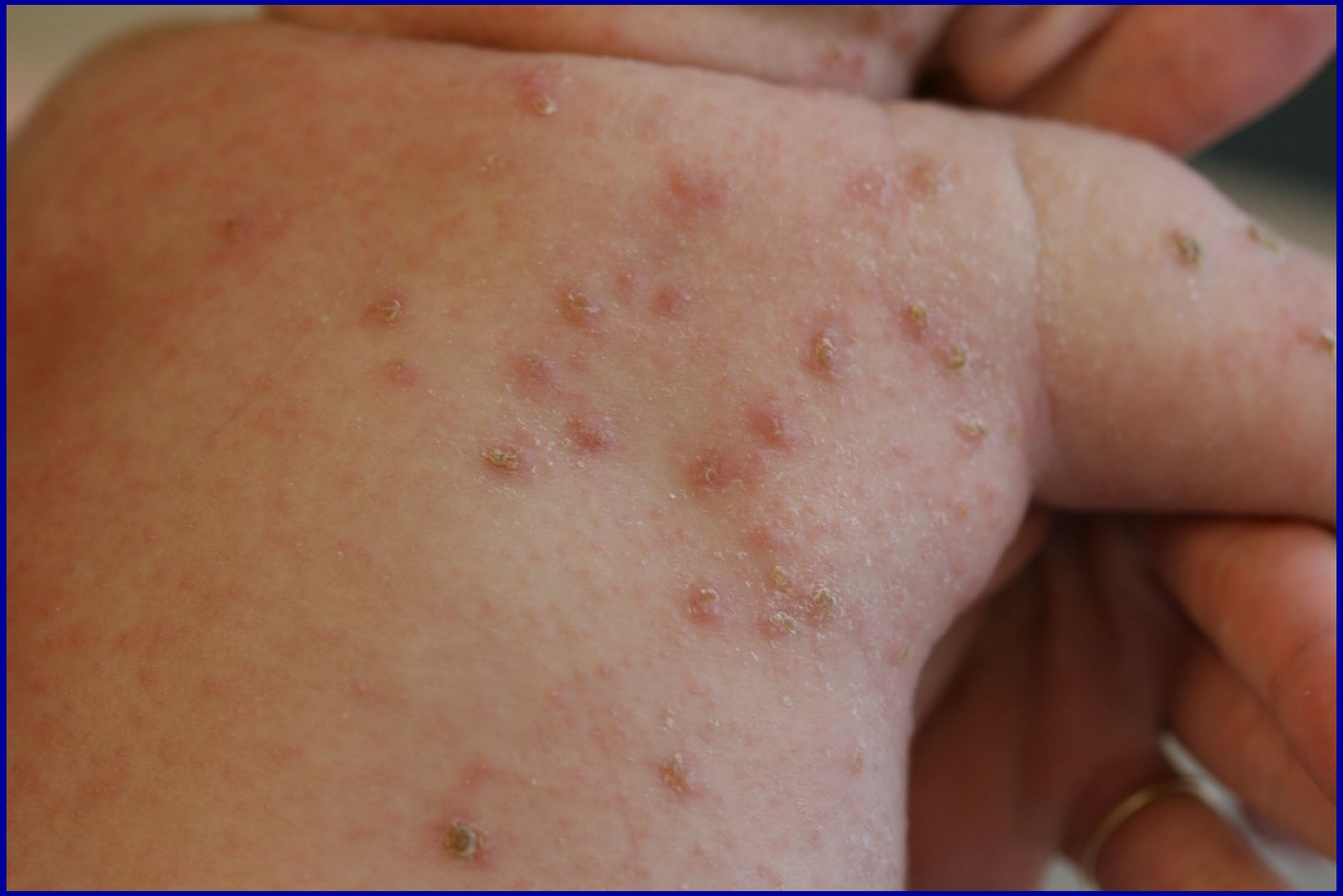
Beware Impetigo!

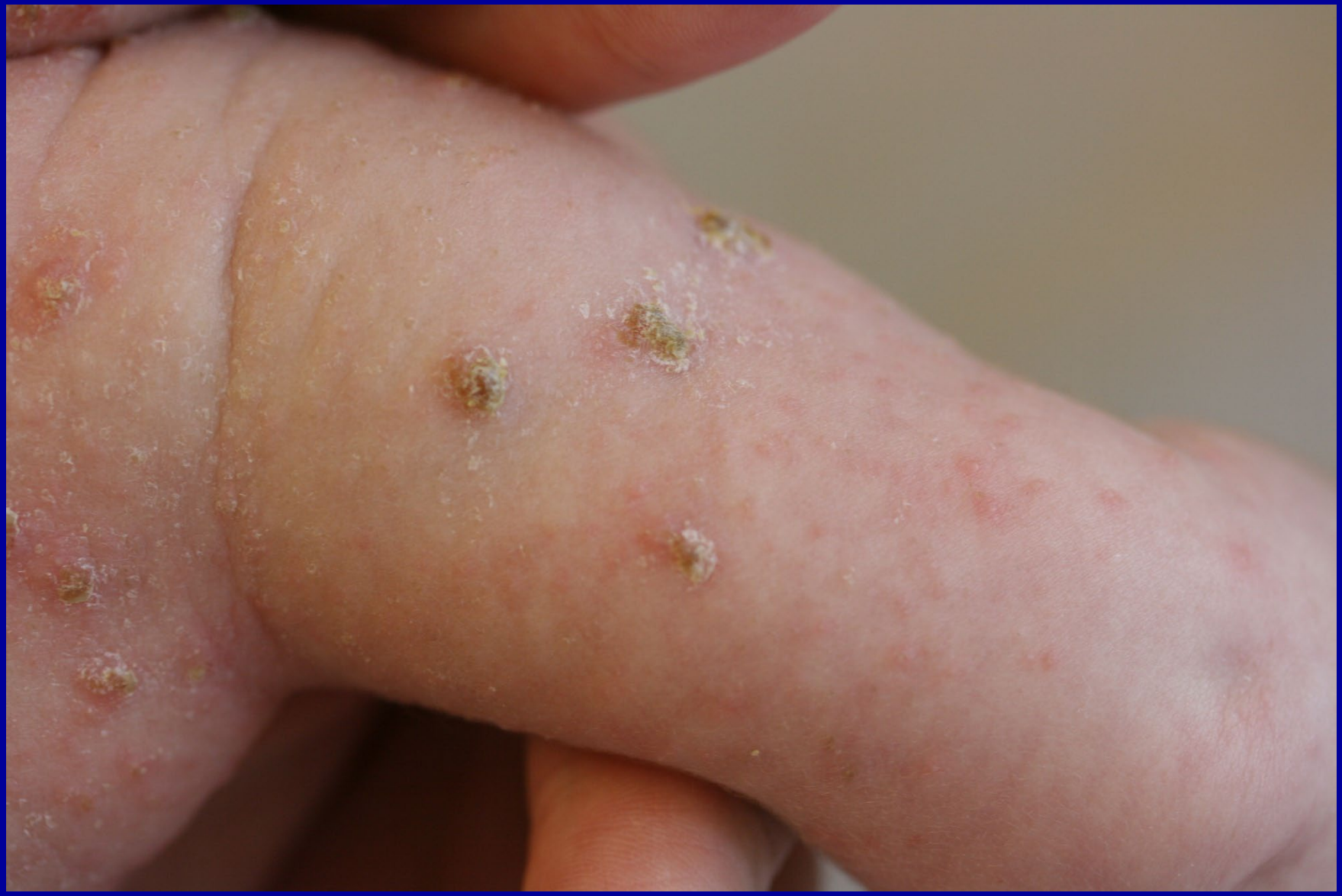




Case #2

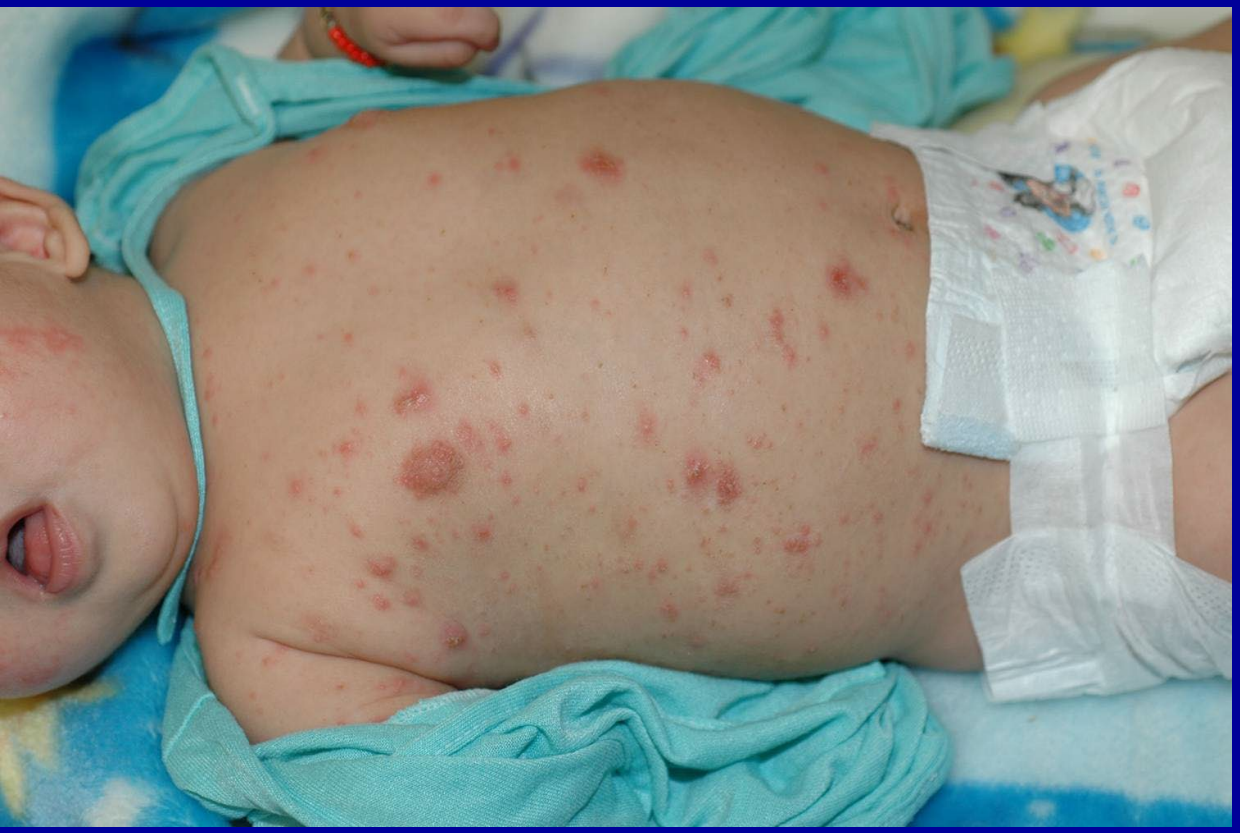
- Previously healthy 2 mo old female
- 1 month of "worsening rash"
- treated with unknown oral antibiotic
- ? Mild itch
- No fever or other signs of illness
- No known sick contacts
- No contacts with rash

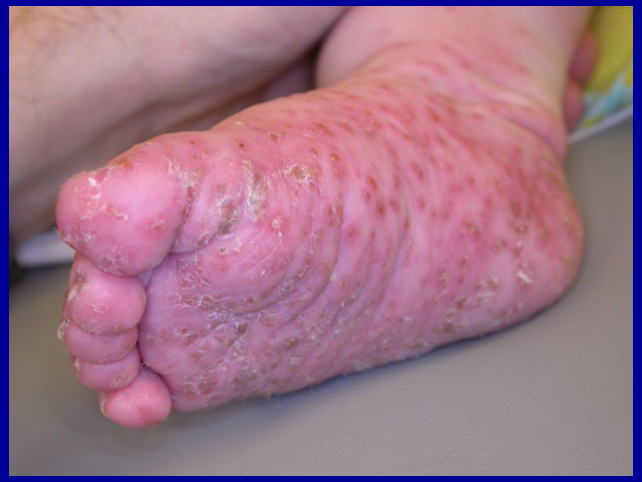




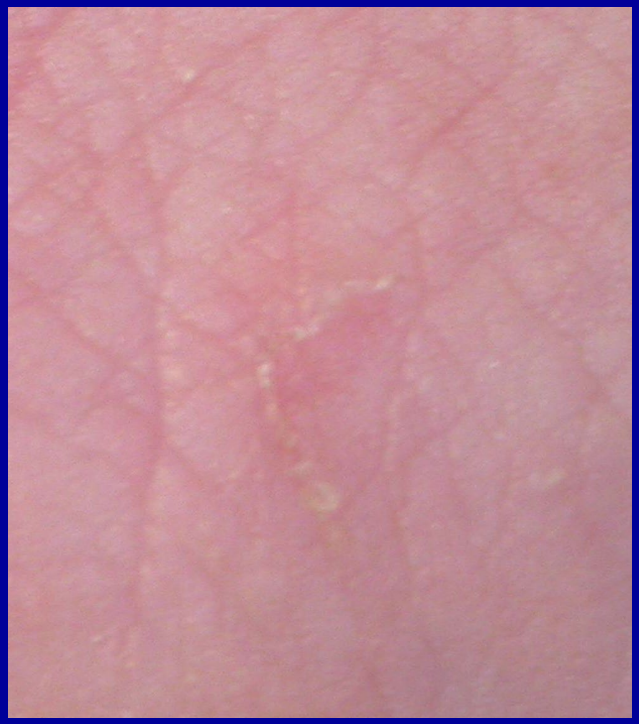
What is the correct diagnosis?

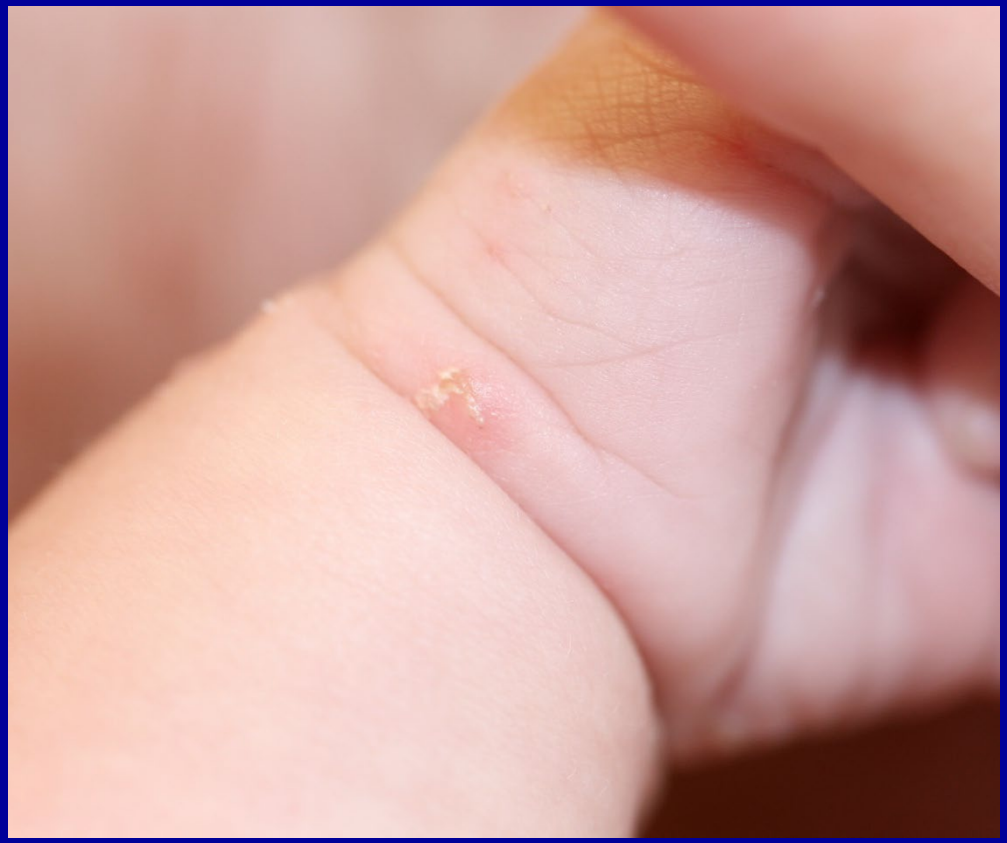
a) Langerhans cell histiocytosis
b) Leukemia cutis
c) Viral exanthem
d) Scabies

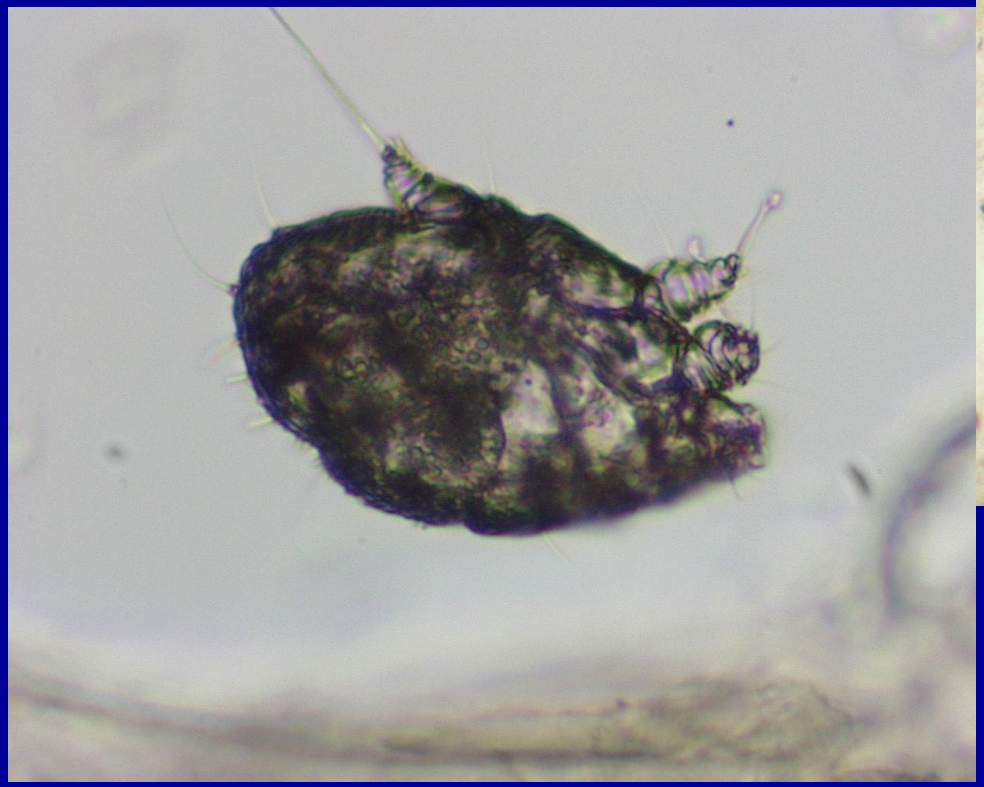


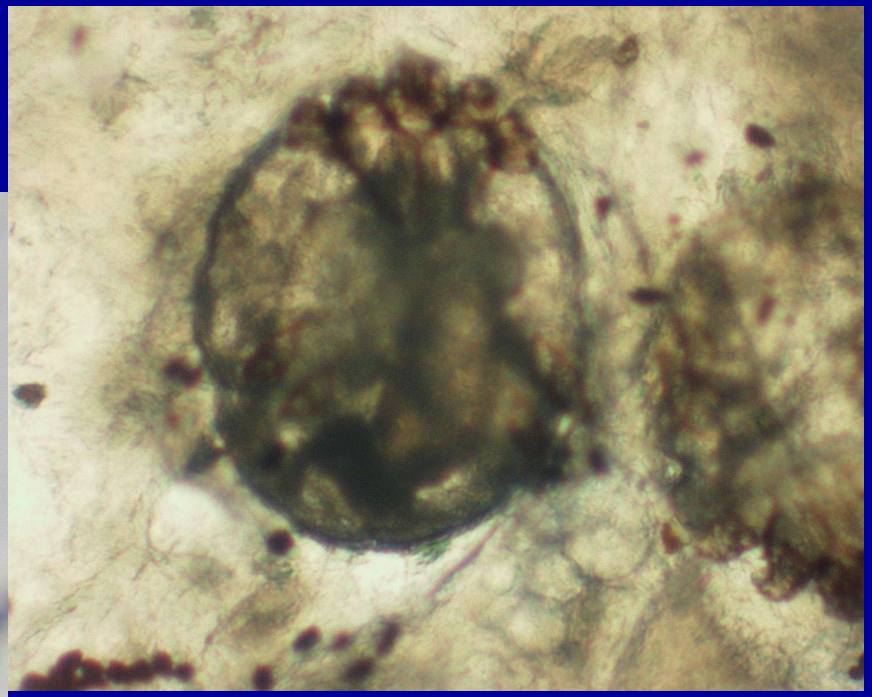


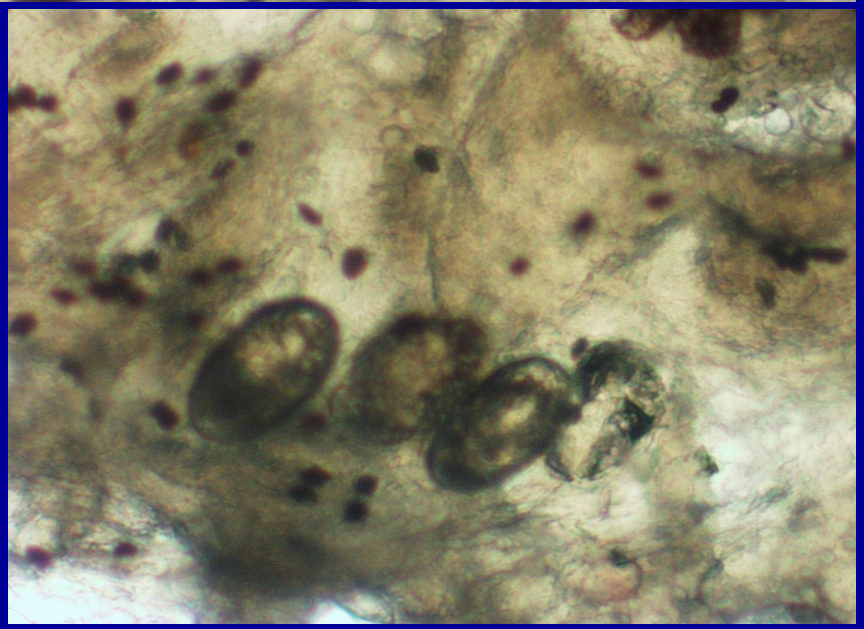
Burrows











Scabies

- Treatment (off label for <2 mos or pregnant/BF)
  - Permethrin cream 5% (Elimite)
    - Neck down for children/adults
    - Include scalp/face for infants
    - Leave overnight (8-14 hours)
    - Wash off in a.m.
    - Repeat treatment in one week
  - Launder clothing/bedding
    - Hot water, hot dryer
    - Large items: dry-clean or seal in bag for 1 week

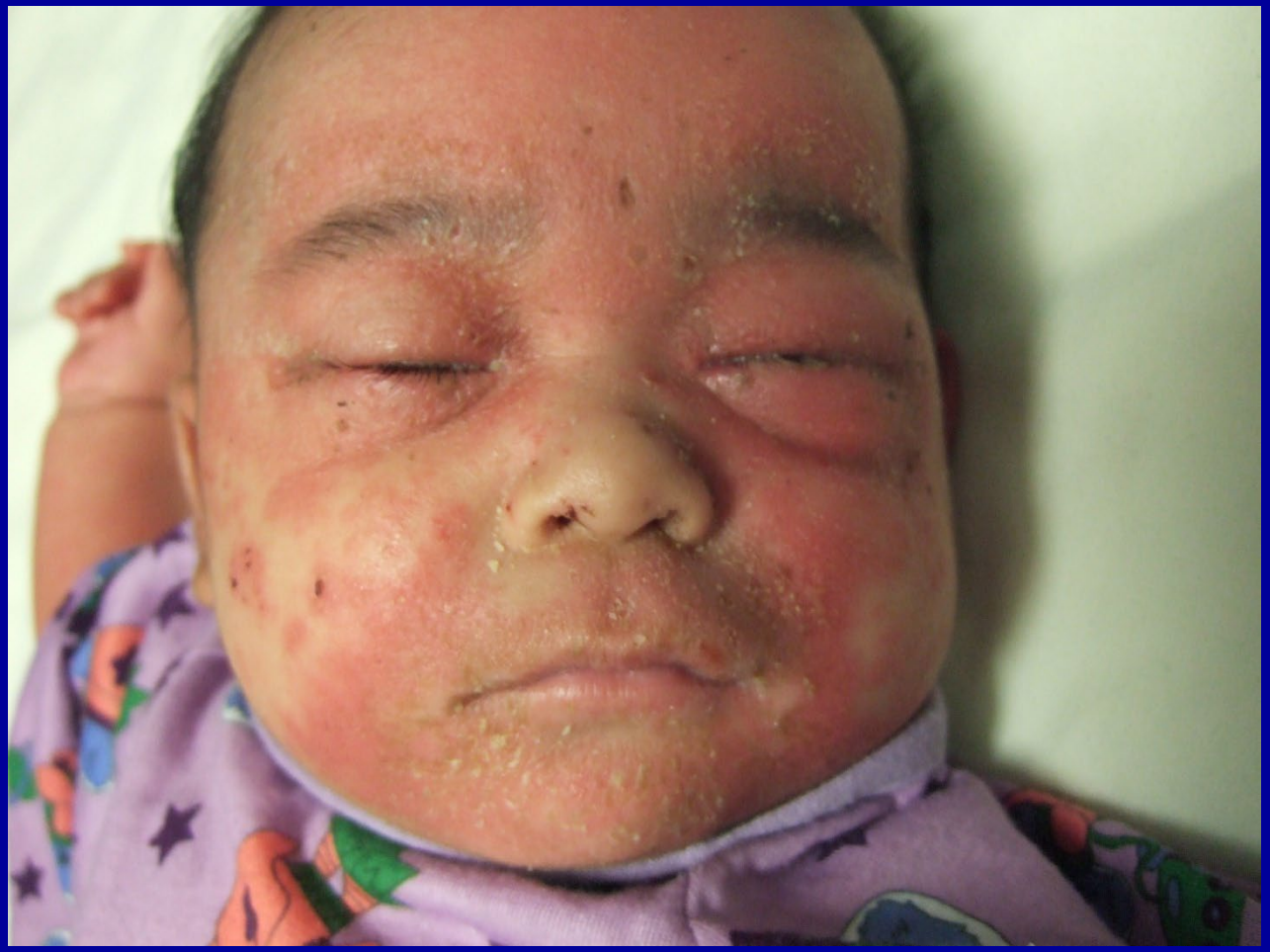
Quarterman et al. Pediatr Dermatol 1994; 11(3):264-6.
Modi et al. Dermatol Online J 2018 May 15; 24(5).

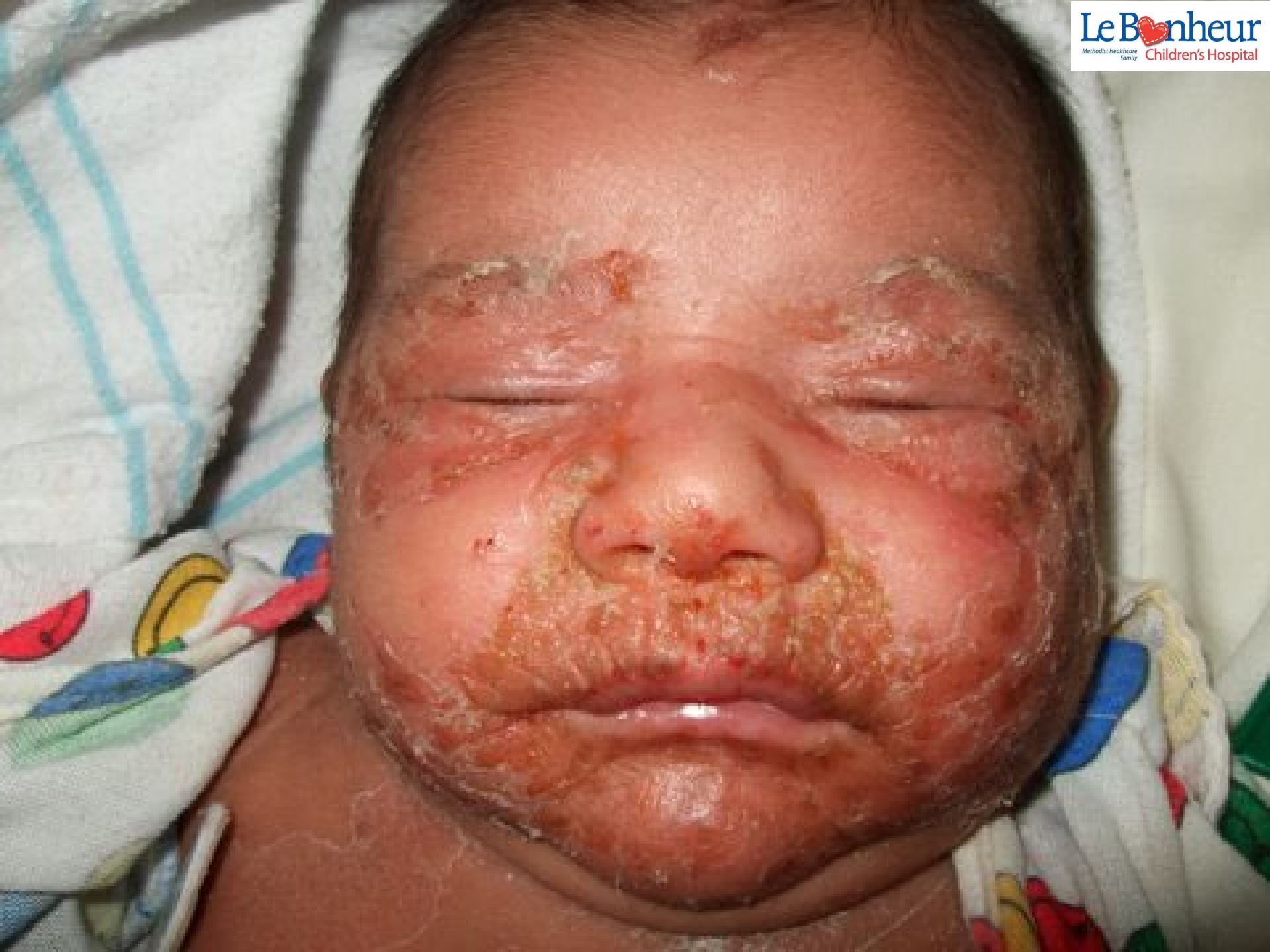
Scabies

- Education!
  - Treat all household members/close contacts at least once
    - Even if asymptomatic!
    - How to accomplish this?
  - Treat twice if itch/rash
  - Itching/rash may take several weeks to clear
    - Antihistamines
    - Mild topical steroid

Case #3

- 2 mo old FT healthy male
- Rhinorrhea/congestion
- Fussiness
- Red/tender skin
- Crusting around mouth
- Blisters and “peeling” of skin

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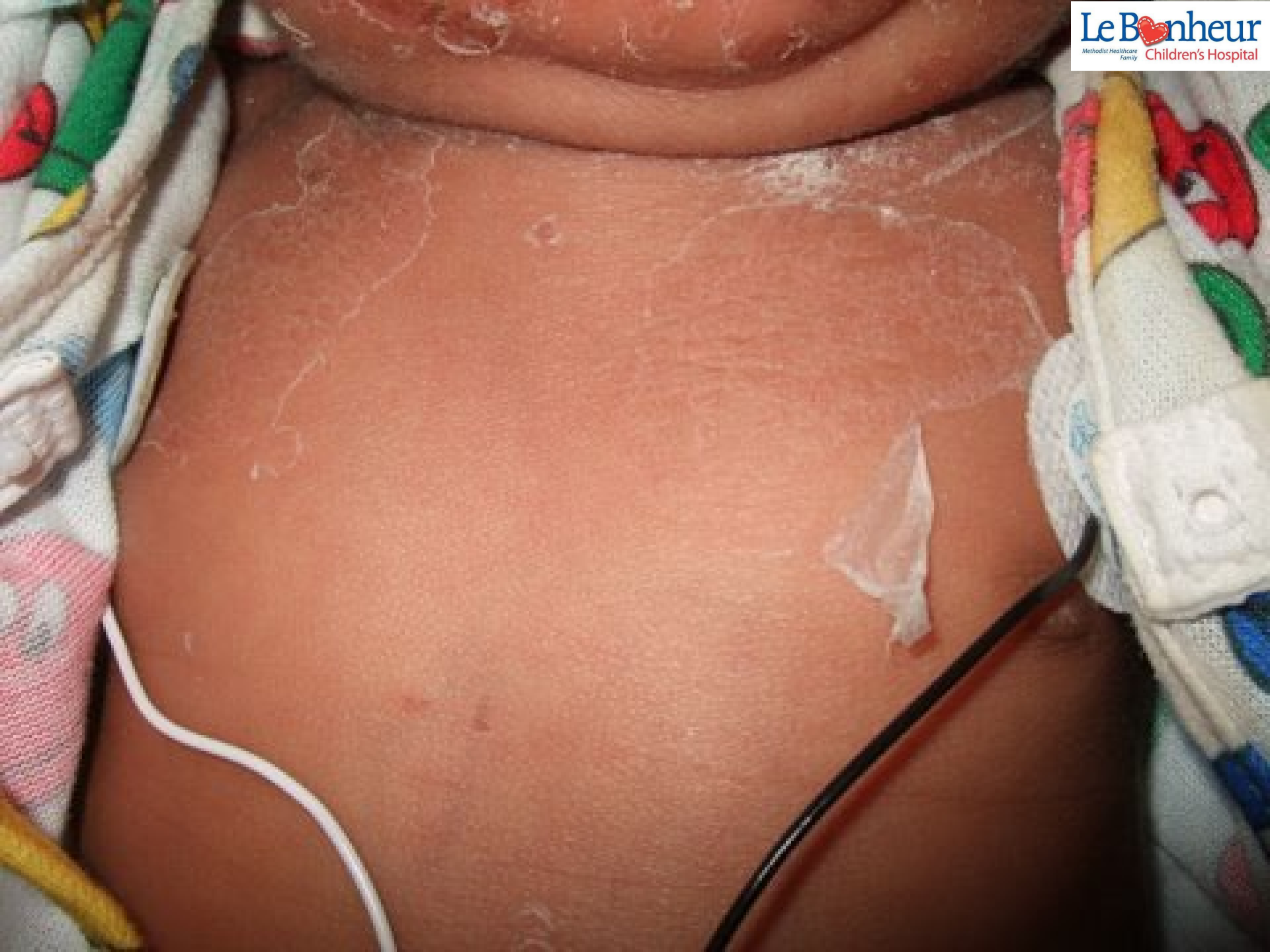
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Diagnosis?

a) Impetigo
b) Stevens Johnson Syndrome (SJS)
c) Staph Scalded Skin Syndrome (SSSS)
d) Toxic Epidermolysis Necrosis (TEN)

Staph Scalded Skin Syndrome (SSSS)

- Staph aureus
  - Exfoliative toxin
  - Cleavage at superficial epidermis
    - Stratum granulosum
  - Pathogenesis:
    - Target Desmoglein 1
  - Why neonates and young kids?
    - Lack of antitoxin antibodies
    - Low renal excretion of toxin

SSSS

- Source?
  - Eyes, nares, perioral, perineum, umbilicus
- Clinical
  - Fever, malaise, irritability
  - Tender erythema, fragile bullae, erythematous erosions
  - Flexural creases
  - + Nikolsky sign

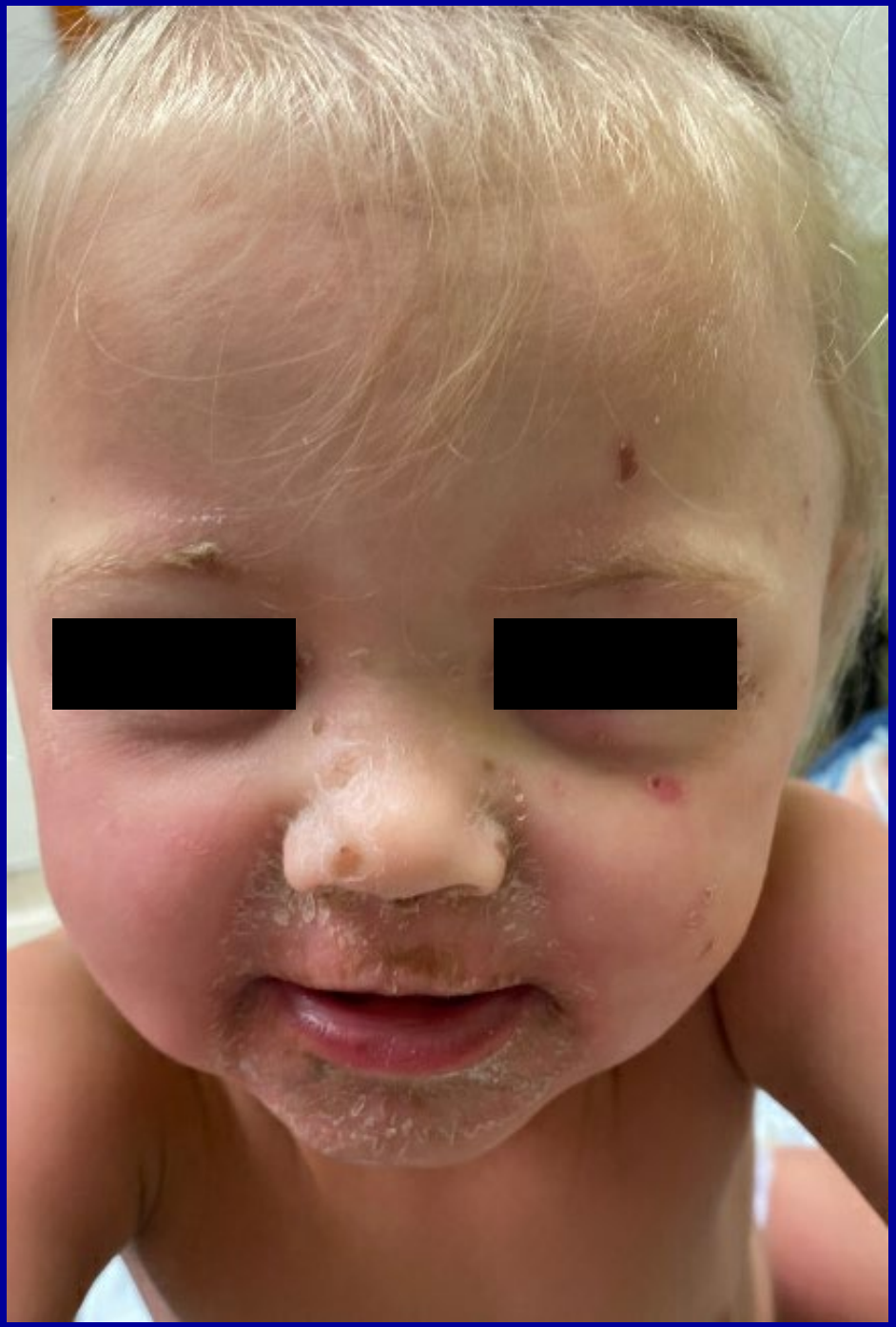
Handler MZ et al. J EurAcad Dermatol Venerol. 2014 Nov; 28(11):1418-23.

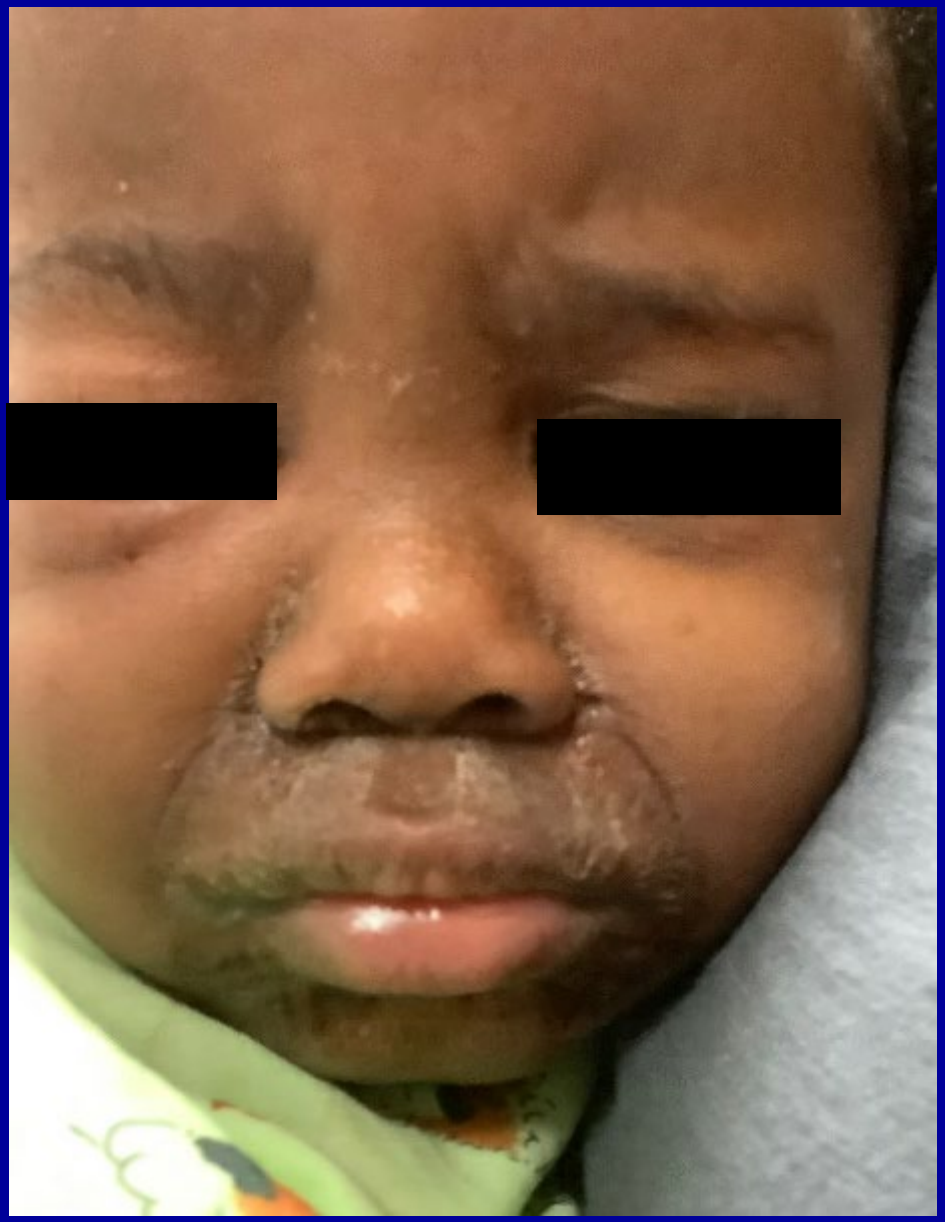
SSSS

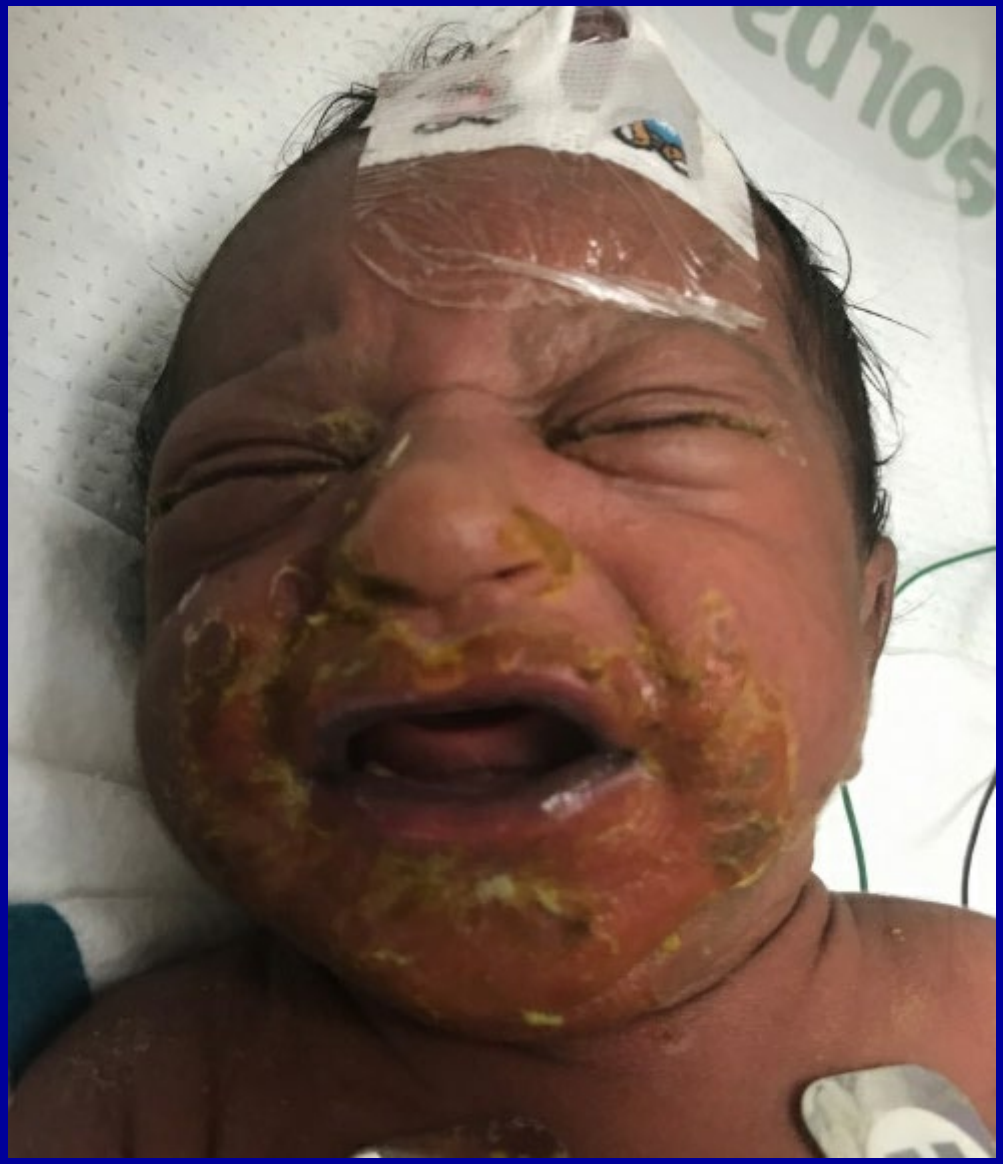
- Diagnosis
  - Clinical
  - Culture? Where?
- TEN?
  - Mucosal involvement
  - Sub epidermal split

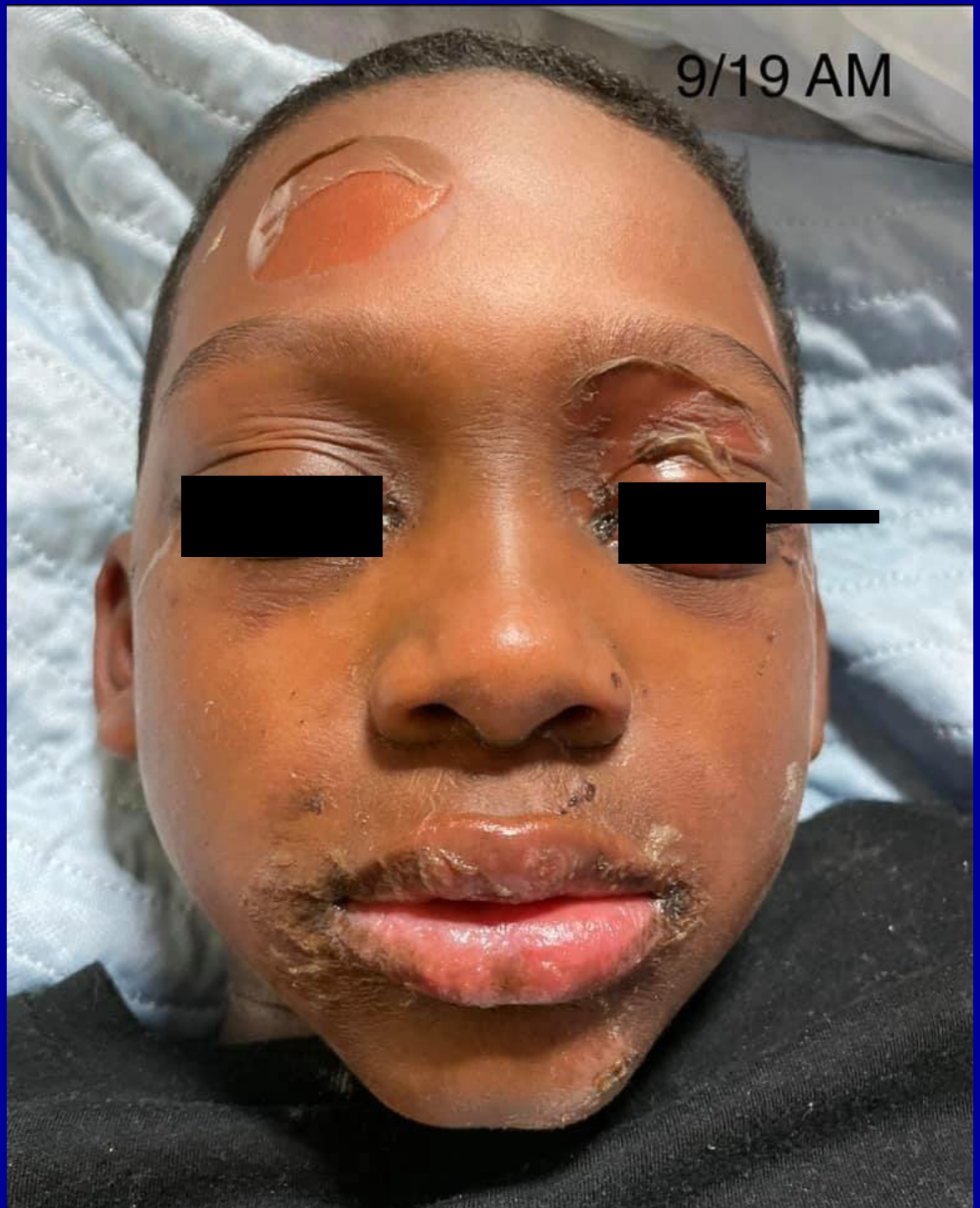
SSSS

- Treatment
  - Clindamycin
  - PCNase resistant PCN
  - Cephalosporin
  - MRSA: vancomycin
- Supportive care
  - IVF's
  - Pain control
  - Wound care
    - Gentle cleansing, soaks, emollient









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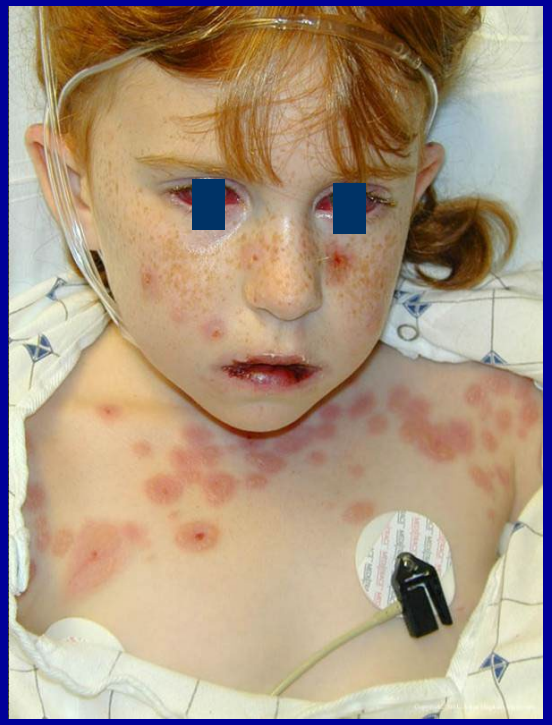
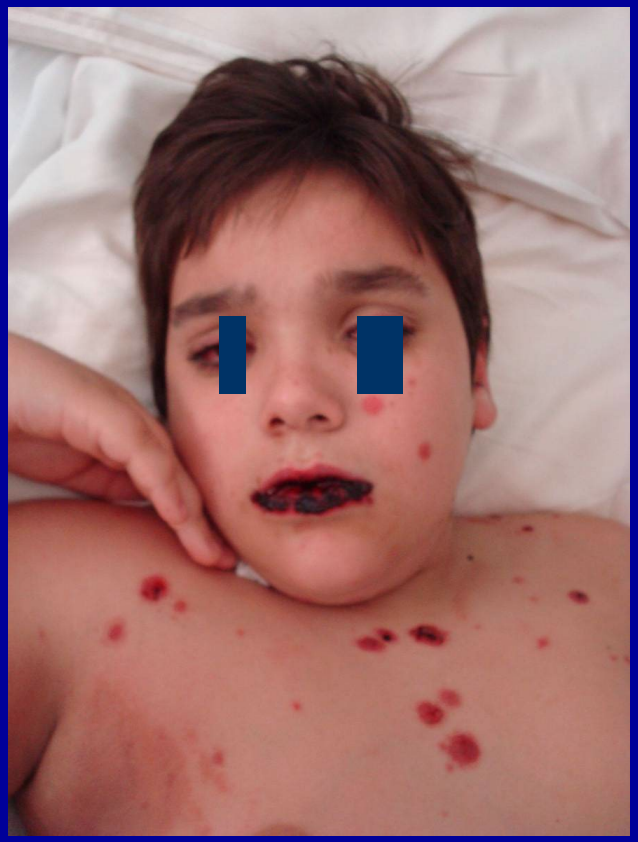
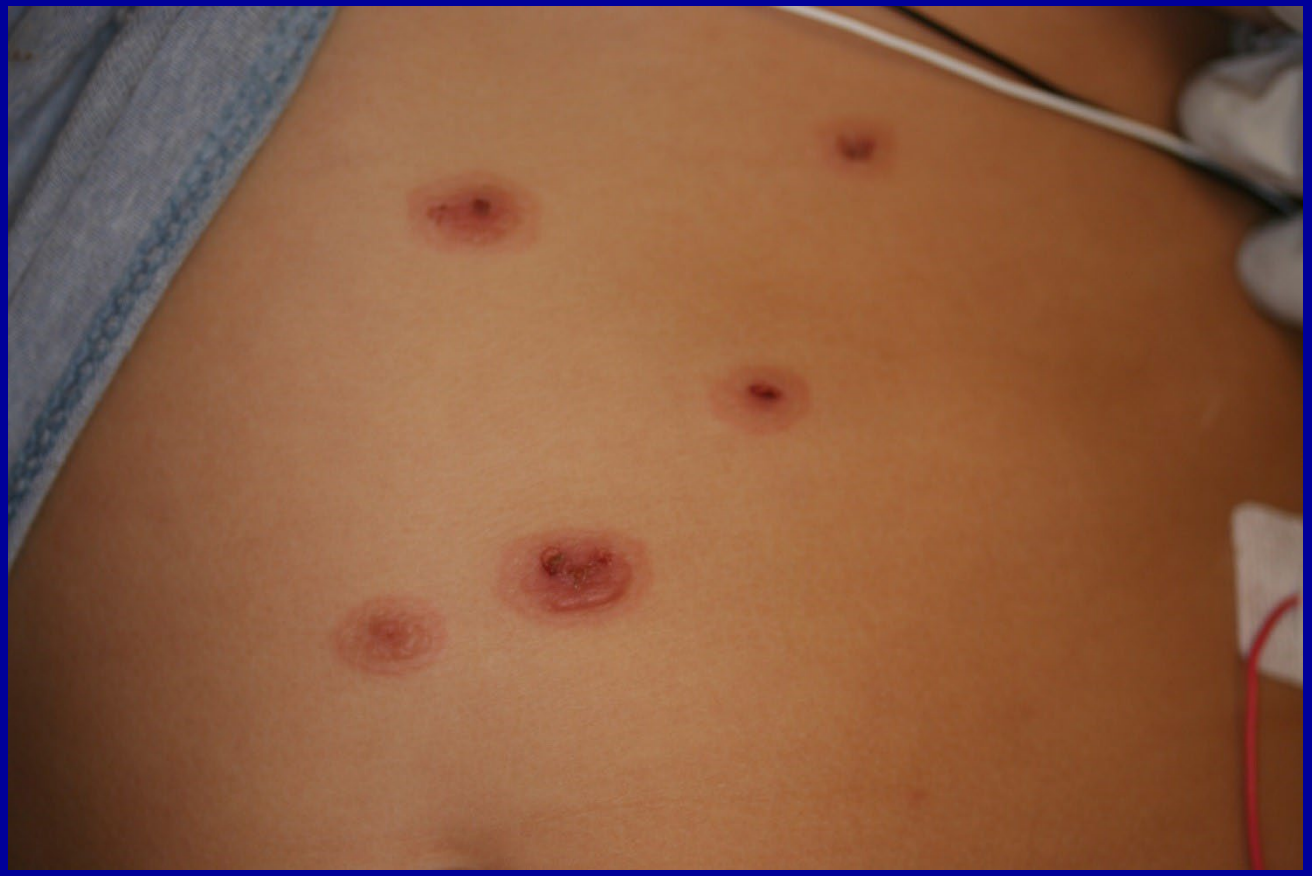
Stevens Johnson Syndrome (SJS)





SJS

- Fever, malaise, skin/mucous membrane lesions
- Prodrome 1-14 days
- Skin lesions
  - Often EM like
  - Vesicles, bullae, epidermal sloughing



SJS

- <10% TBSA
- Two or more mucous membranes
  - Eyes
  - Mouth/esophagus
  - Trachea
  - Genital/urethral/peri-anal skin

SJS

- Pathogenesis
  - Immune activation
  - Keratinocyte death

SJS

- Etiology
  - Up to 90% drug-related
    - Over 200 drugs
      - Sulfa
      - Anticonvulsants
      - NSAID's
      - Allopurinol
      - Penicillin
    - Typically within 1-4 weeks
  - 10% infection

SJS

- Diagnosis
  - Clinical
- Treatment
  - Supportive
    - Multi disciplinary
    - Wound care
    - Fluids/electrolytes
    - Nutrition
    - Pain control
    - Treat secondary infection

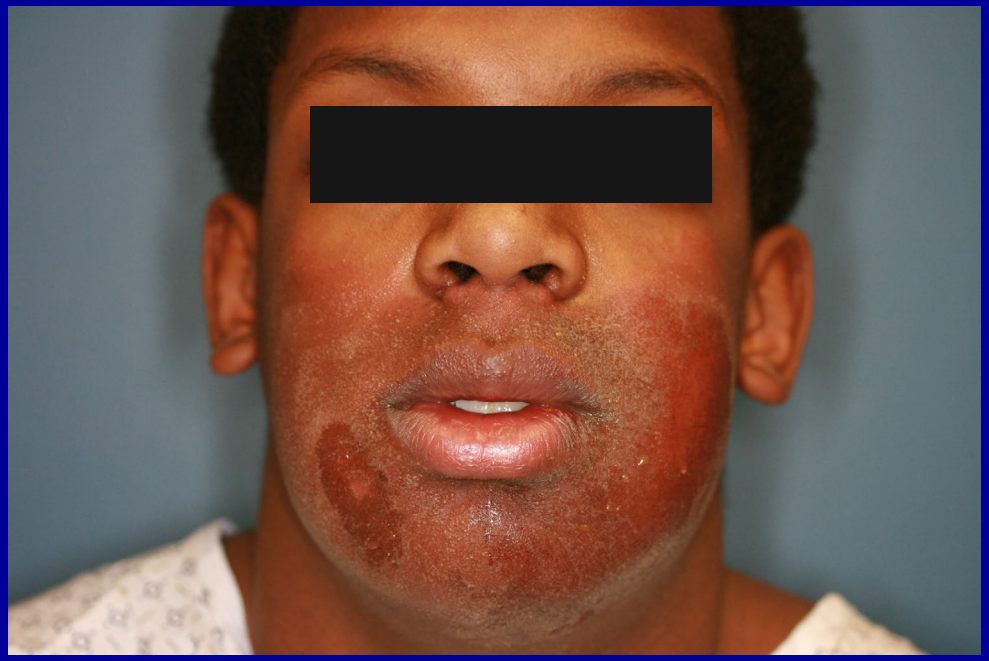
SJS

- Treatment
  - Cessation of drug!
  - Controversial
    - IVIG, steroids, cyclosporine, etanercept, other
- Recovery
  - Weeks

Belver MT et al. Allergol Immunopathol. 2016 Jan-Feb; 44(1):83-95.
Kirchhof MG et al. J Am Acad Dermatol. 2014 Nov; 71(5):941-947.

Case #4

- Previously healthy 14 yr old male
- Hospitalized for three days for “facial cellulitis”
- After d/c, rash/swelling of face recurred
- Returned to the ED and was referred to dermatology



Diagnosis?

a) Cellulitis
b) Eczema herpeticum
c) Allergic contact dermatitis
d) Pustular psoriasis

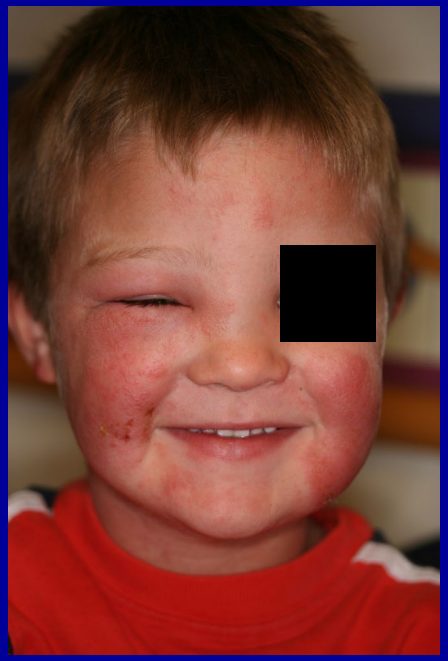
ACD

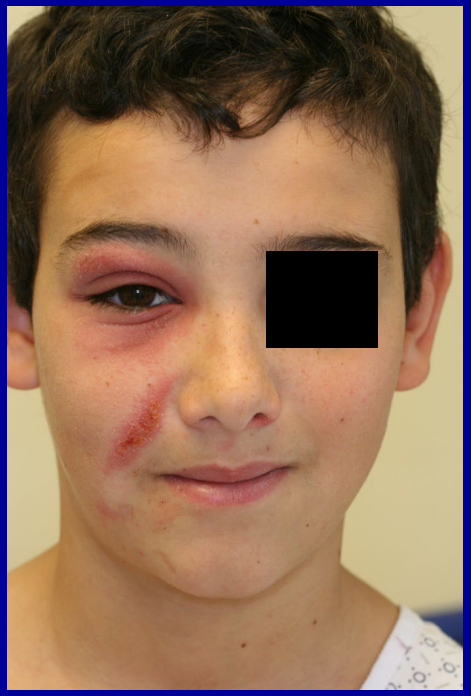
- Acute lesions
  - Erythema, edema, papules, vesicles/bullae, oozing, sharply defined
  - Intense pruritus
  - Multiple areas
  - Secondary bacterial infection possible
    - More purulent
    - More tender

Bacterial Cellulitis

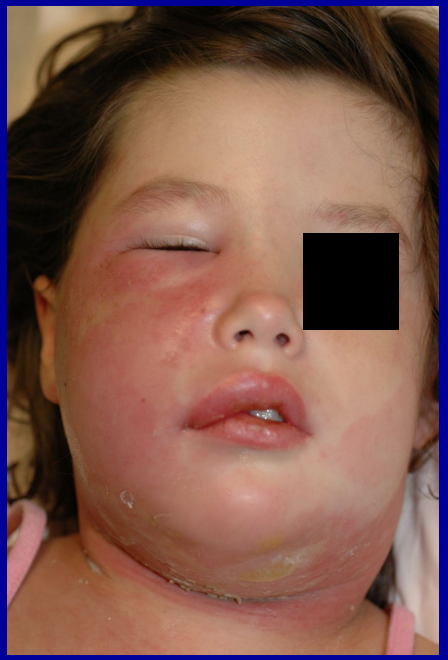
- Factors that may be helpful
  - Tenderness/pain prominent
  - Borders less sharply defined
  - Malaise/fever
  - Elevated wbc
  - Child looks sicker
    - Especially if facial

ACD



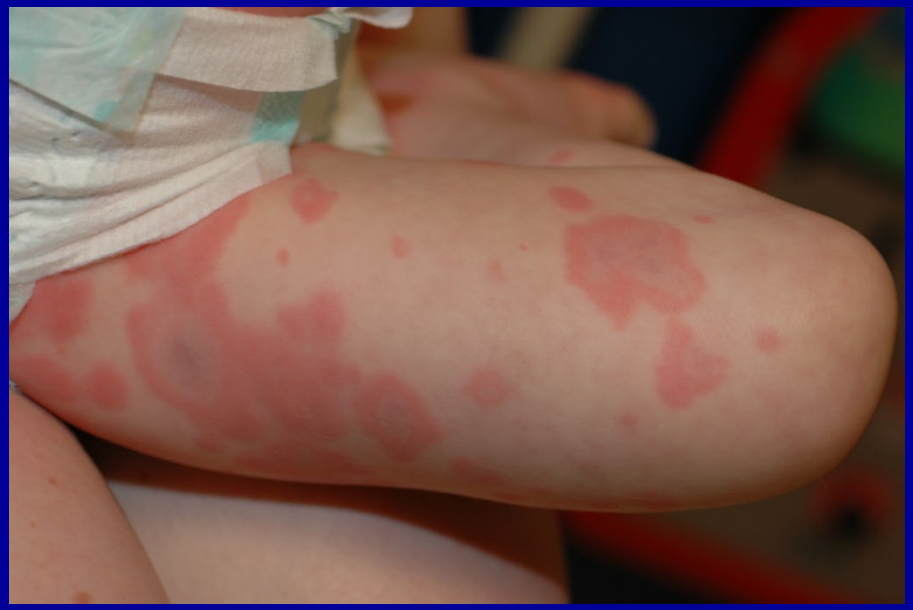


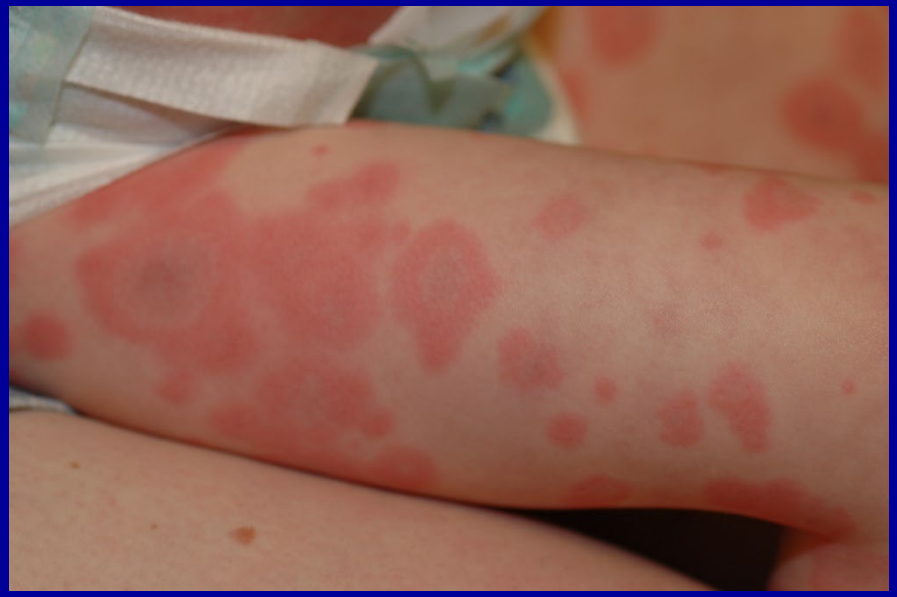
Facial Cellulitis

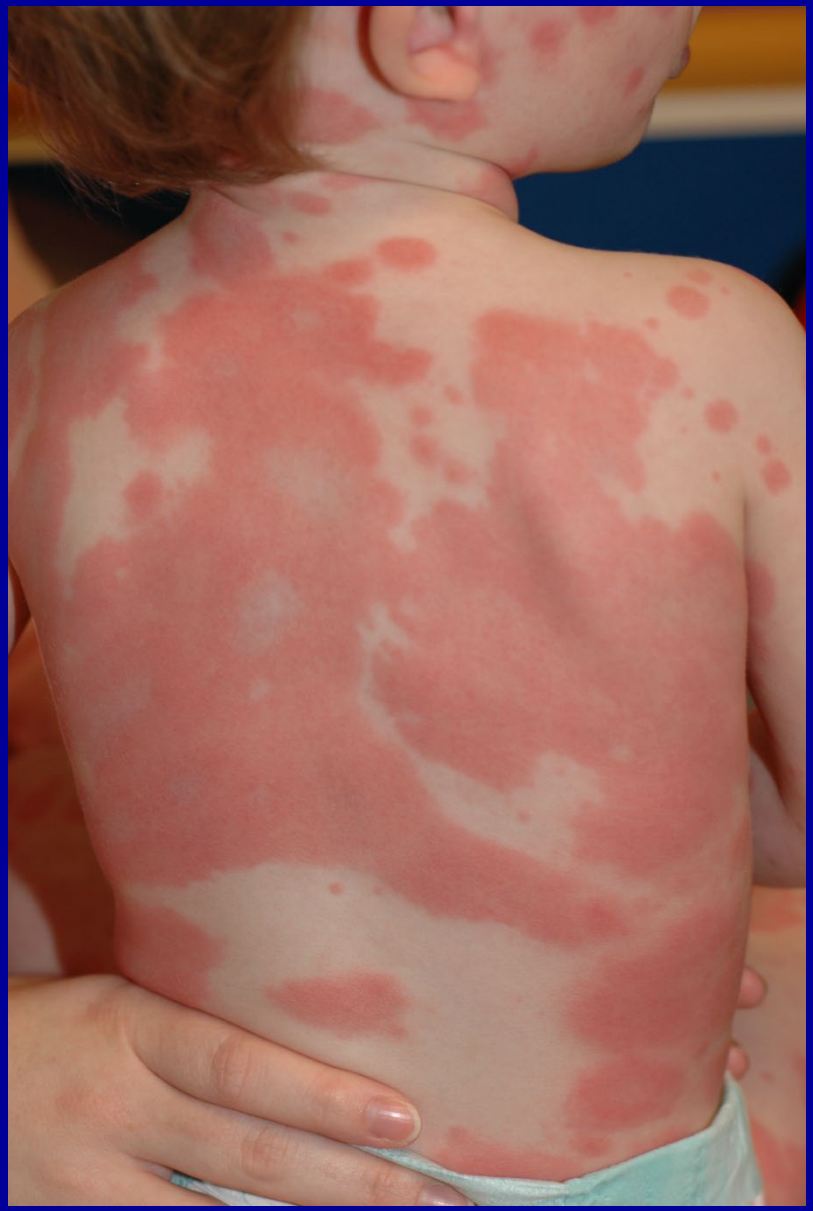


Case #5

- Previously healthy 14 mo old female
- 2 day history of fever, URI
- Seen by PMD yesterday and started on Augmentin for OM







What is your diagnosis?

a) Erythema multiforme
b) Stevens Johnson syndrome
c) Urticaria
d) “Serum sickness”

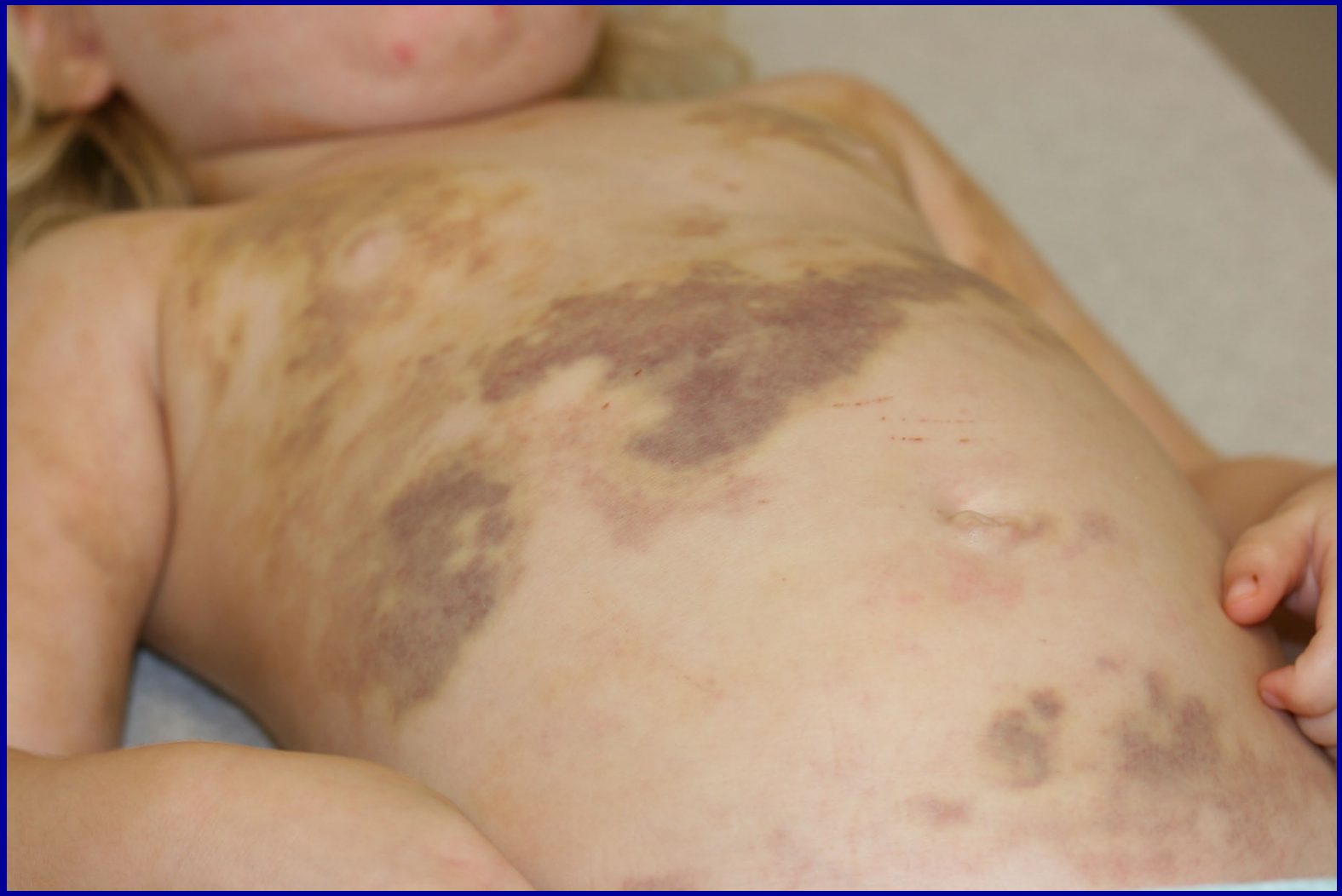
Urticaria

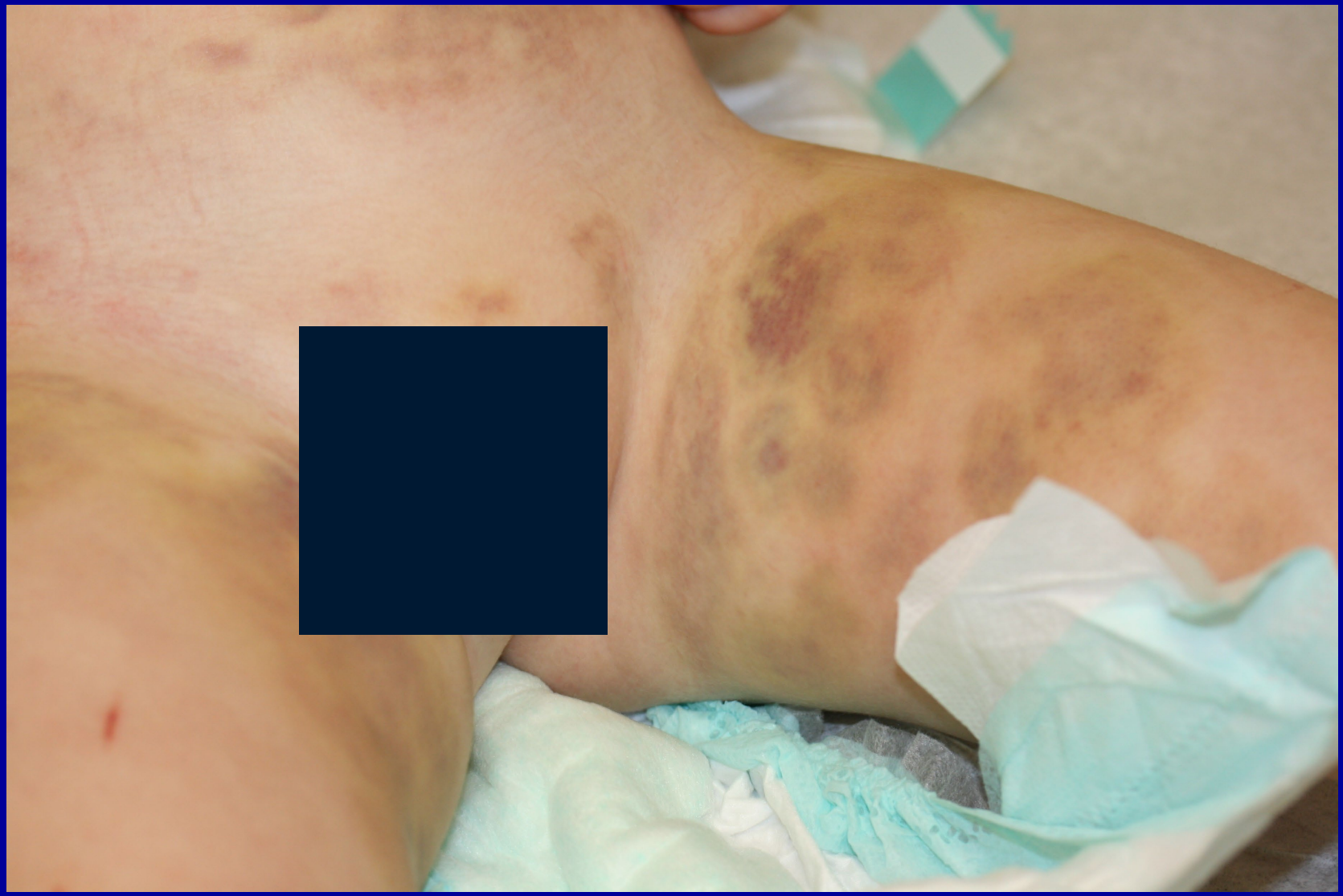
- Transient, erythematous wheals
- Small, localized vs. large, generalized areas
- SQ involvement- giant urticaria, acute annular urticaria
  - Swelling of face, distal extremities
  - Acrocyanosis
  - Central duskiness
    - "urticaria multiforme"

Shah KN et al. Pediatrics 2007 May; 119(5):e1177-83.

Urticaria

- Individual lesions rarely persist >12-24 hours
  - >24-36 hours, suspect other etiology
    - Urticarial vasculitis
- Usually pruritic





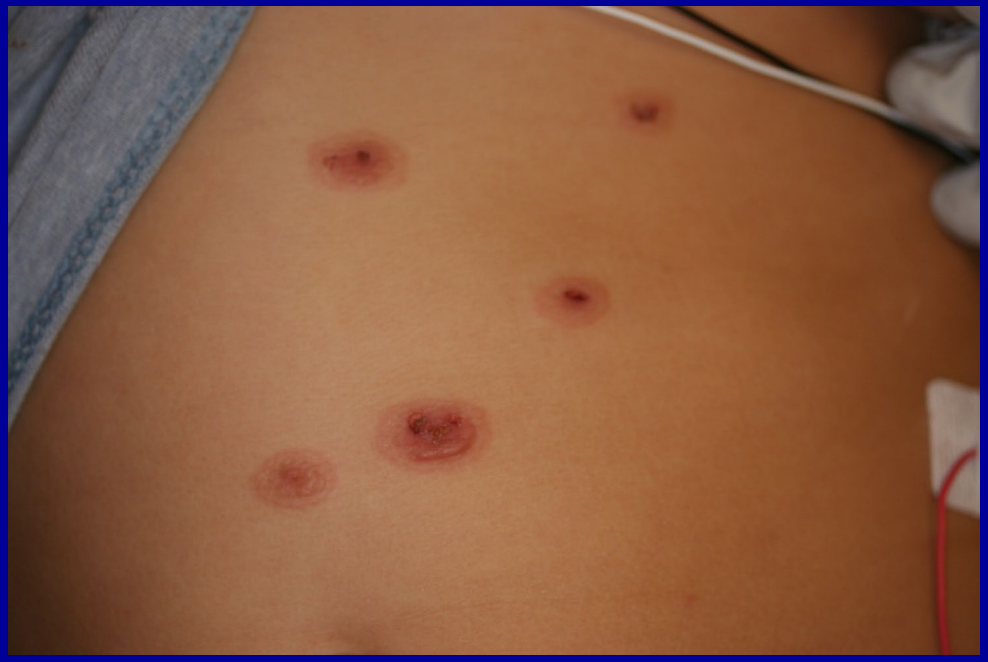
Urticaria

- Etiology
  - Acute <6 weeks
    - Children, viral infection
      - Other infection(s)
      - Foods
      - 10% drug-related
        - » Penicillins
  - Chronic >6 weeks
    - Less common in children
      - 80% idiopathic

Urticaria

- Treatment
  - Eliminate trigger
  - Symptomatic
    - Antihistamines
      - sedating/non-sedating H1 and H2
    - Other
      - Cool baths, cool compresses
      - Cooling lotions (Sarna®, Eucerin® Calming)
    - ? Steroids

Erythema Multiforme



Erythema Multiforme

- Triggers
  - HSV
  - *Mycoplasma pneumoniae*
  - Drugs

Erythema Multiforme

- Eruption is symmetric
  - Any area of body
  - Often on palms/soles
  - Appears over 3-7 days
- Fixed for several days
- Usually asymptomatic
  - Slight burning/itching

Erythema Multiforme

- Up to 50% with oral lesions (mild)
  - Swelling/crusting of lips
  - Erosions on tongue/buccal mucosa
    - Must have 2 or more mucous membranes for SJS!
- Lesions heal over 2-3 weeks
  - Post-inflammatory pigmentary changes

Erythema Multiforme

- Treatment is largely symptomatic
  - Oral antihistamines
  - Domeboro's soaks
  - Bland emollient
- Close monitoring for progression
- Steroids not indicated

What About "Serum Sickness?"

- Very rare in children
- Type III hypersensitivity rxn
  - Immune complex deposition
  - Complement activation
- Occurs within 1-3 weeks
  - animal serum or other foreign protein(s)

"Serum Sickness"

- Cutaneous features
  - Fixed urticarial eruption, angioedema, and a purpuric eruption on the edges of hands/feet
- Systemic inflammation
  - Vasculitis, nephritis, arthritis/arthralgia, myalgia, LAD

Serum Sickness Like Reaction (SSLR)

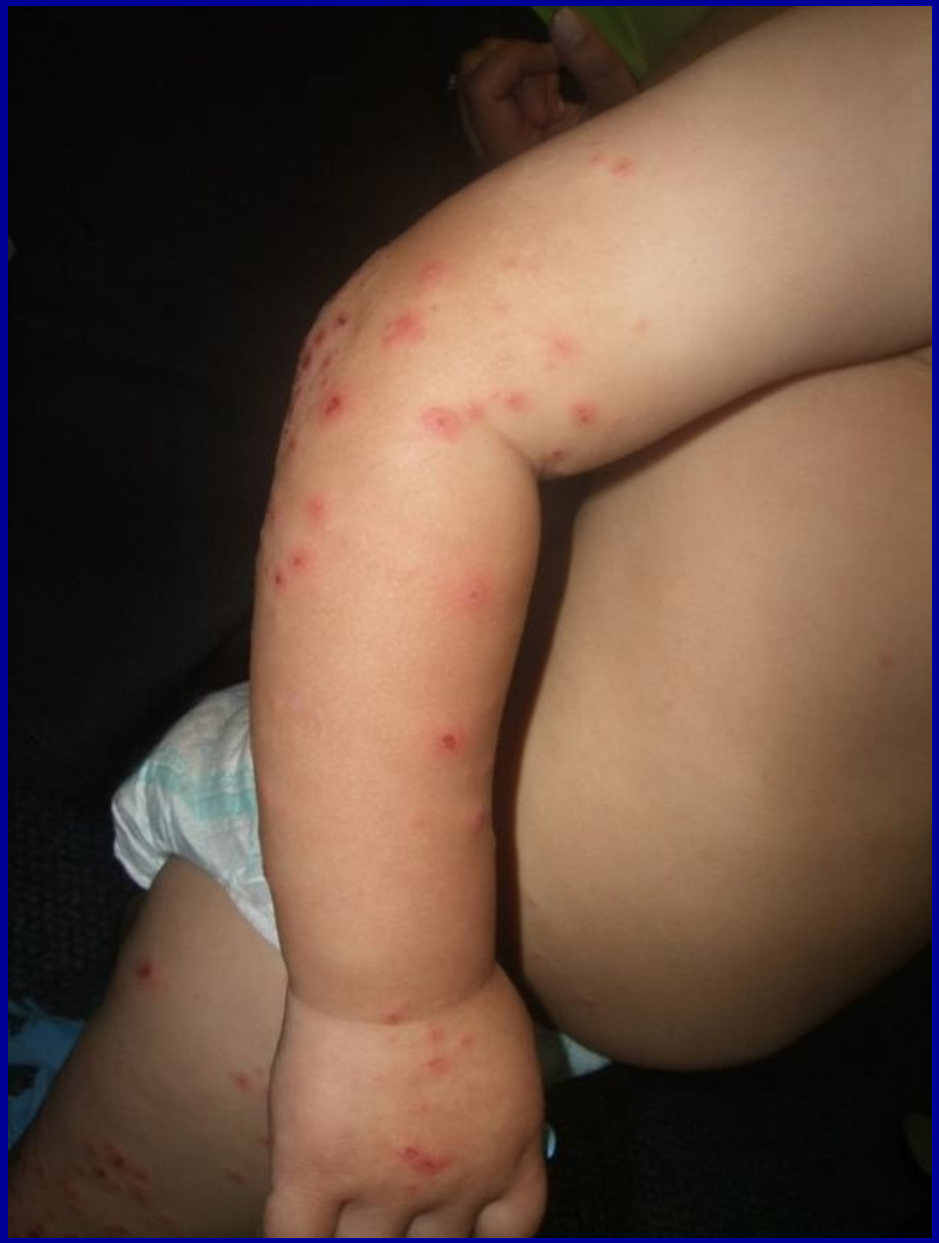
- Fever, LAD, arthritis/arthralgia, angioedema, fixed urticarial eruption
- Triggers
  - Medications
    - Cefaclor, other
  - Pneumococcal vaccine

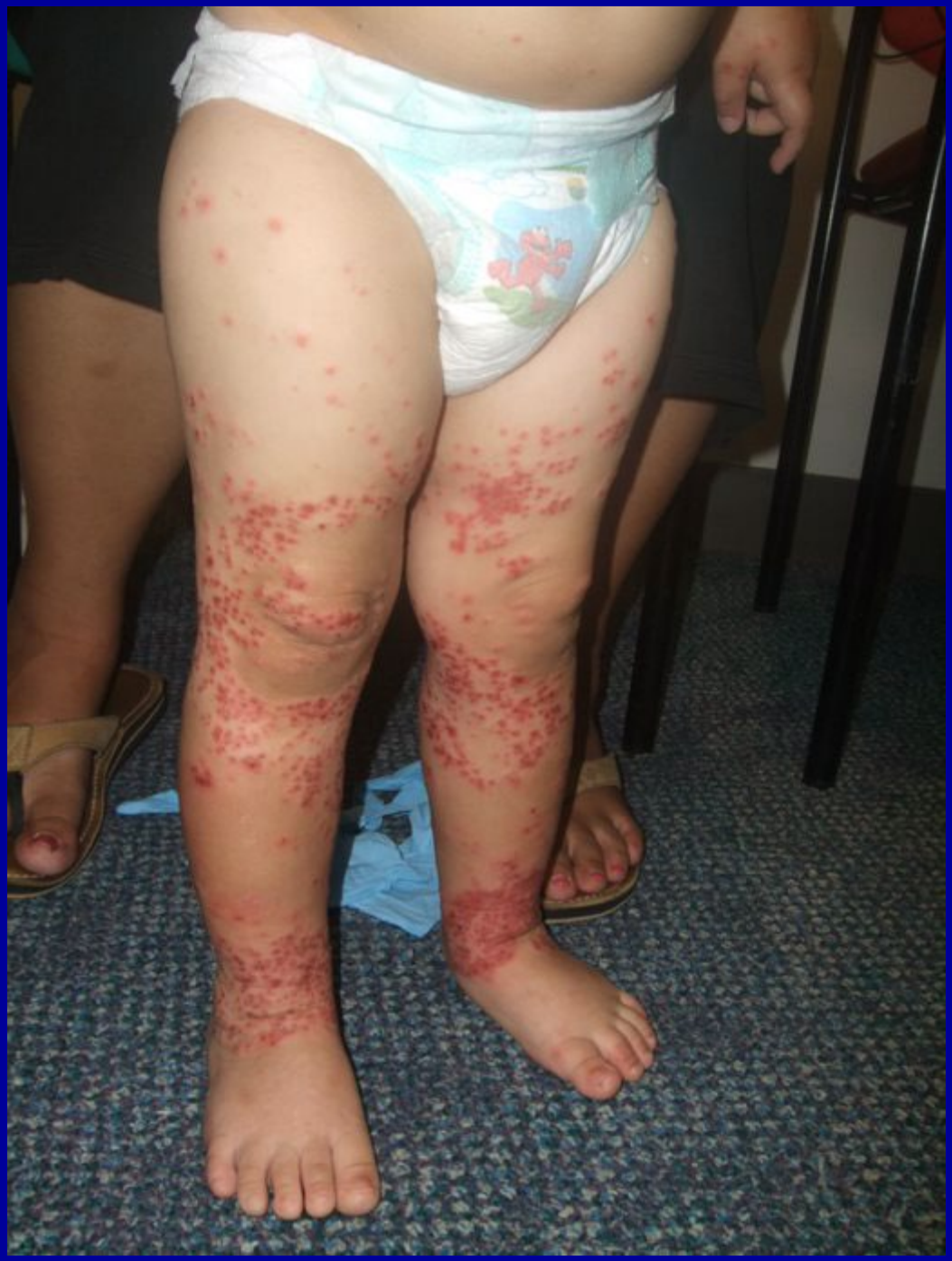
SSLR

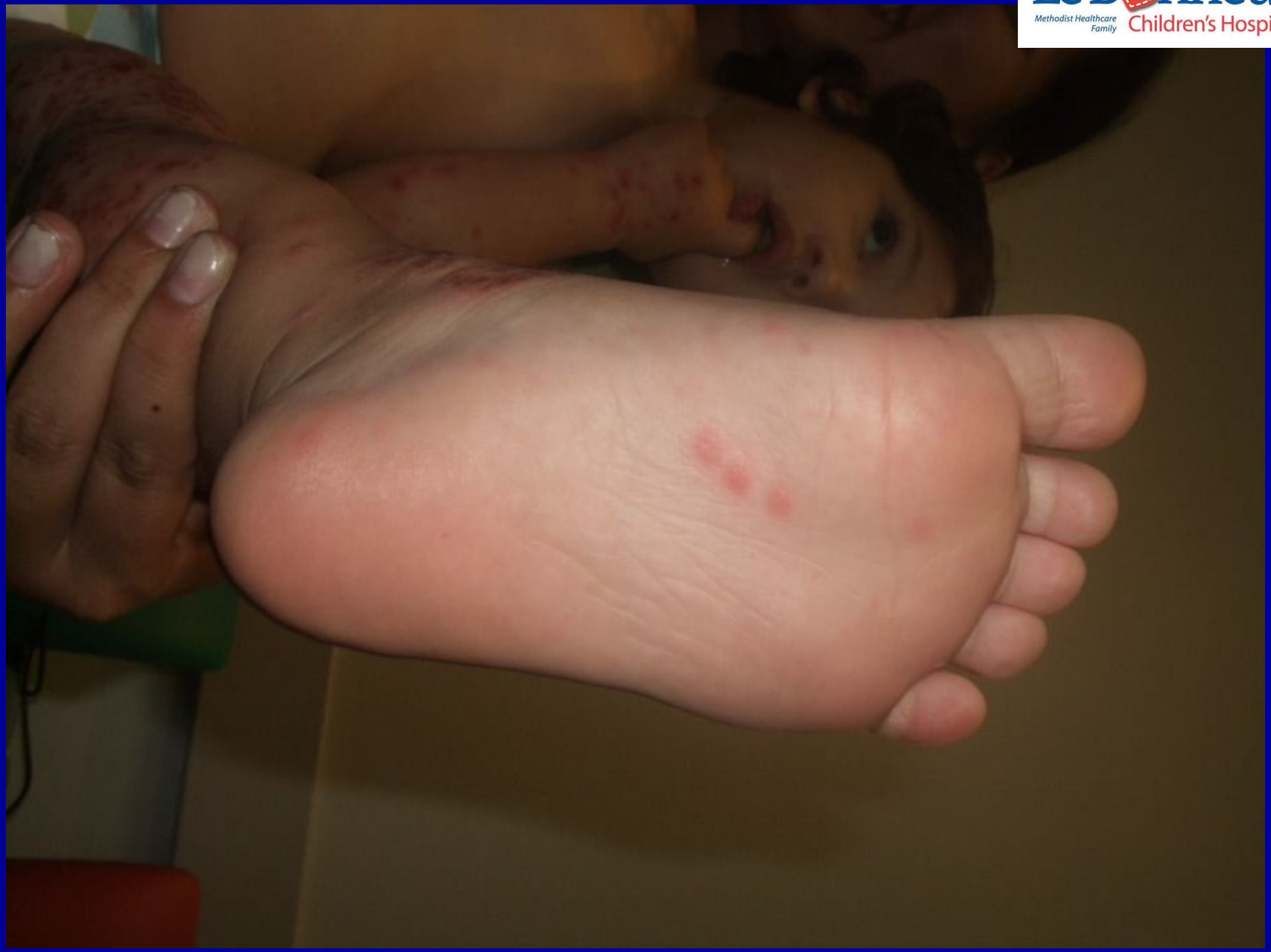
- Treatment
  - d/c medication
  - Systemic antihistamines
  - Systemic steroids

Case #6

- 2 yr old healthy male
- Spent his first week at daycare.
- Now has a fever and diffuse rash of small erythematous macules and papules on the lower face, trunk, arms, and legs.







Diagnosis?

a) Eczema herpeticum
b) Varicella
c) Atypical HFM
d) Impetigo

Atypical HFM

- Classic HFM
  - CV A16, EV 71
  - Fever, malaise, herpangina
  - Rash
    - Papules, vesicles
    - Palms, soles, distal extremities, buttocks

Atypical HFM

- Coxsackie A6
  - Mild viral illness
  - Rash
    - Papules, vesicles, bullae, petechiae/purpura
    - Gianotti Crosti-like distribution
      - Cheeks, buttocks, extensors
    - “Eczema coxsackium”

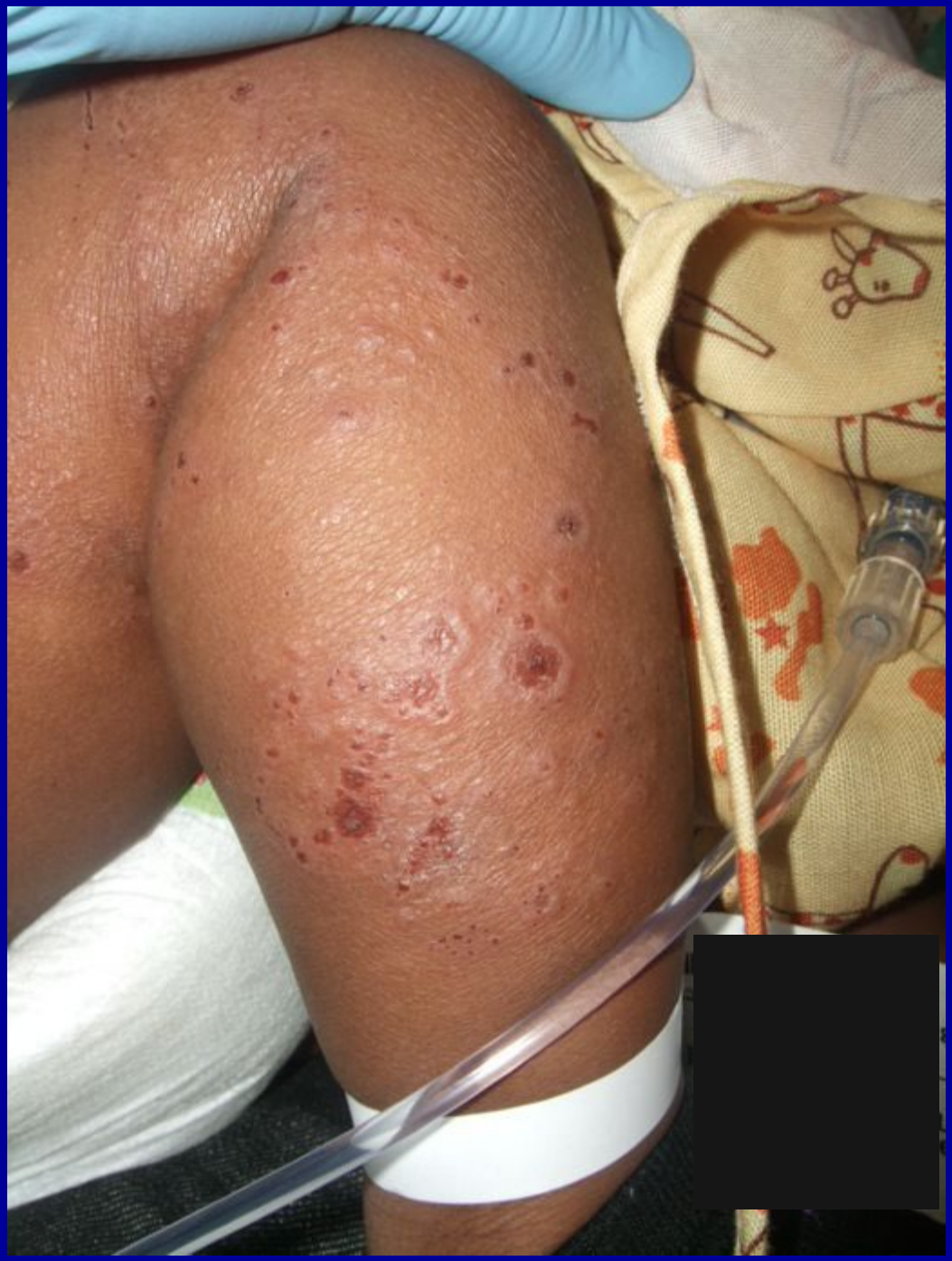
Ventarola D et al. Clinics in Dermatology 2015 (33): 340-346.

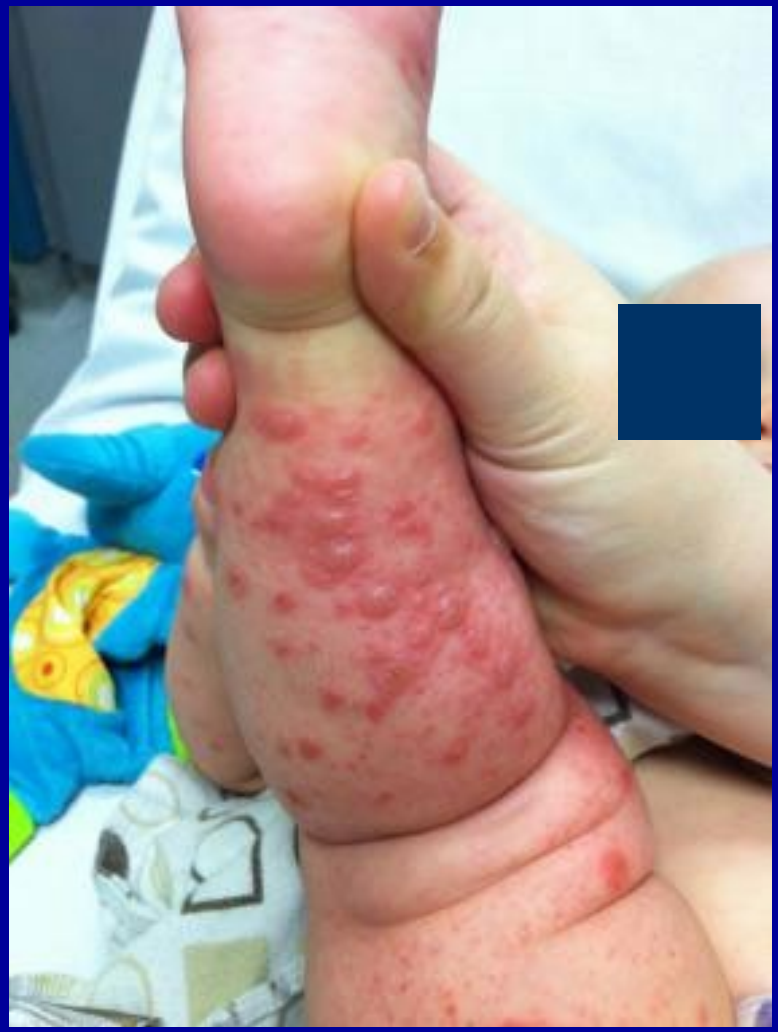
Atypical HFM

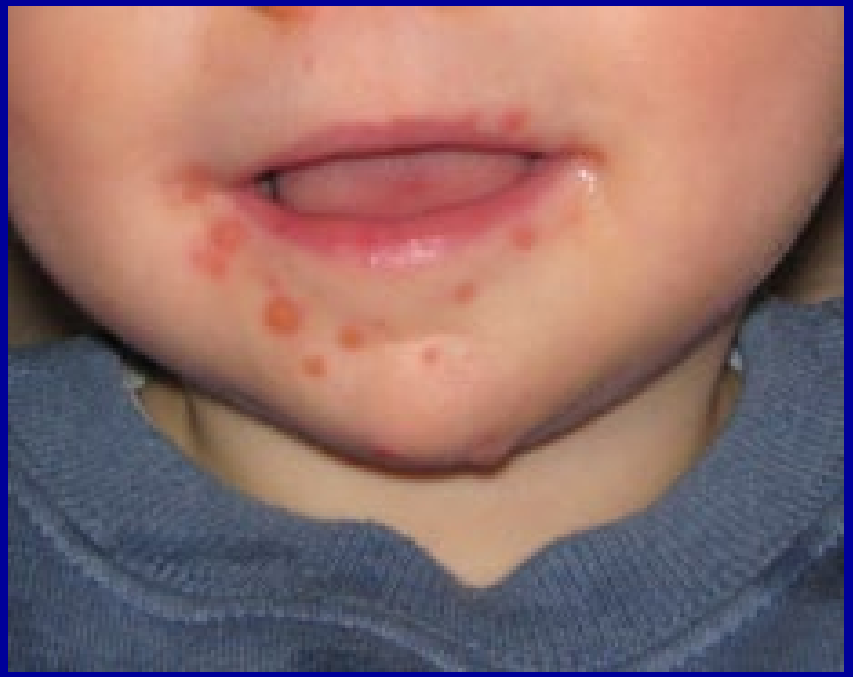
- Transmission
  - Fecal/oral, oral/oral, respiratory
- Incubation
  - 3 to 6 days
- Viral shedding
  - Stool
  - 4 to 8 weeks

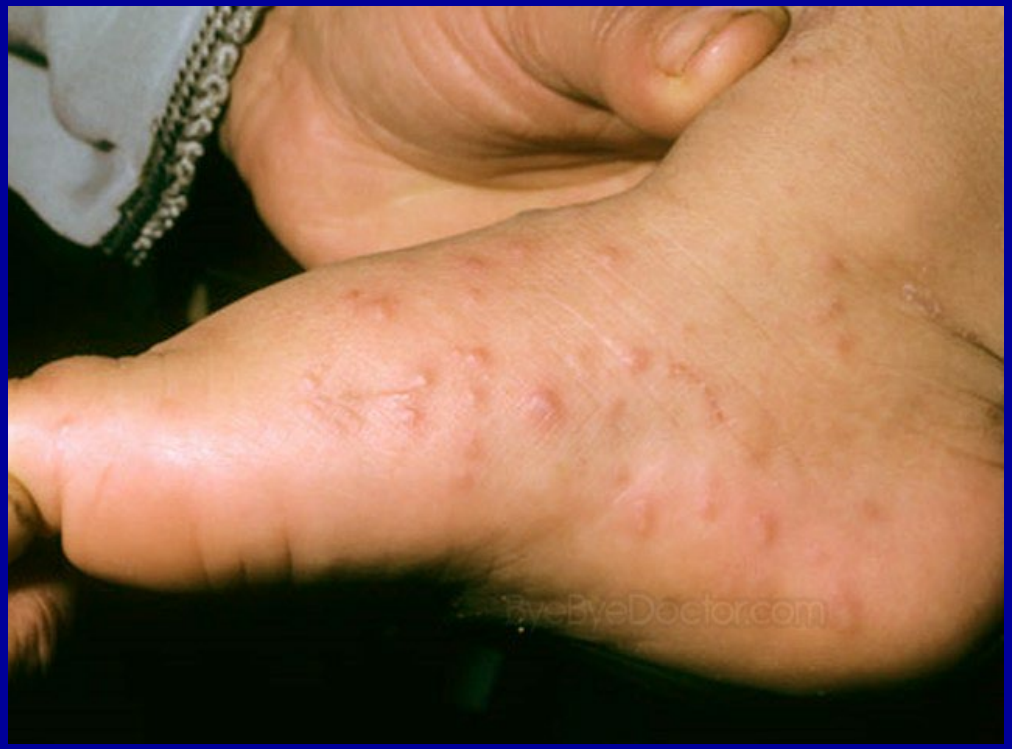
Atypical HFM

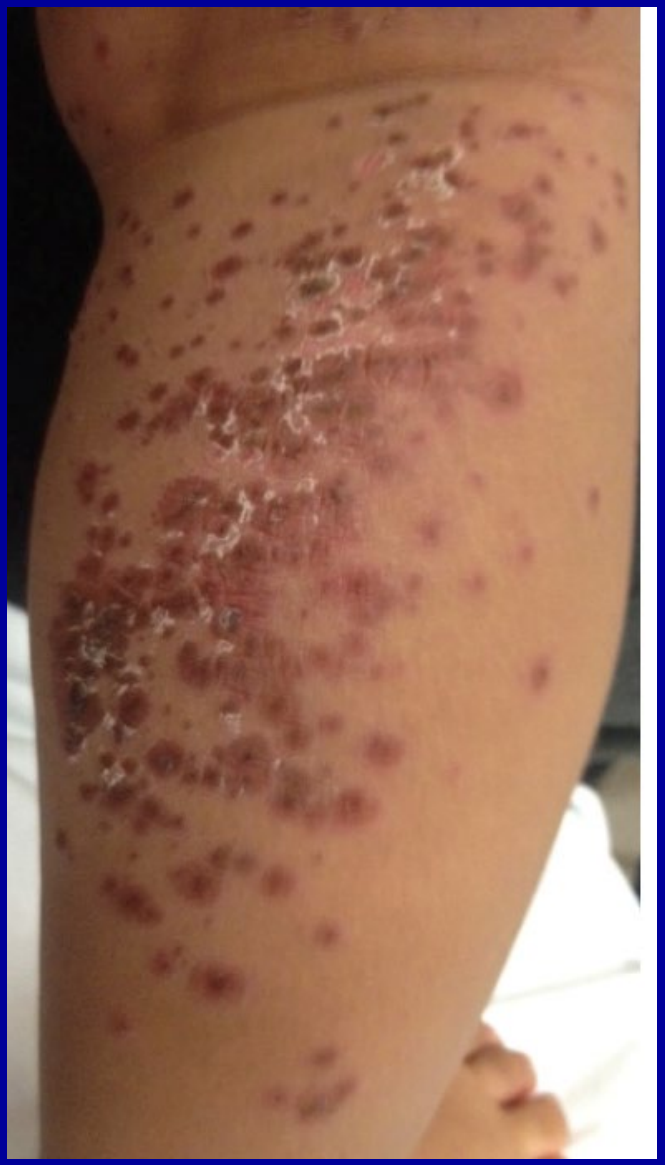
- Course
  - 1 to 2 weeks
- Treatment
  - supportive

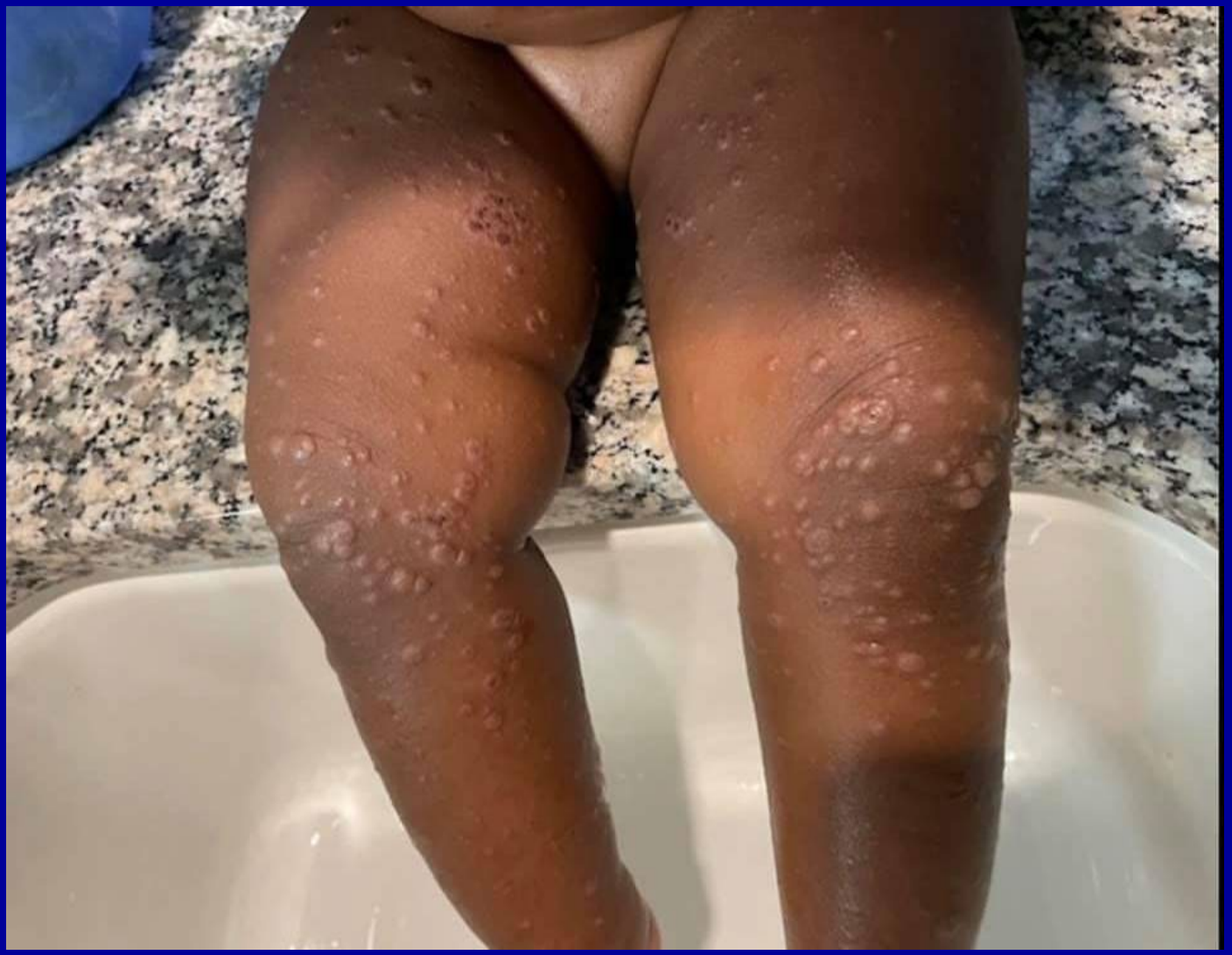












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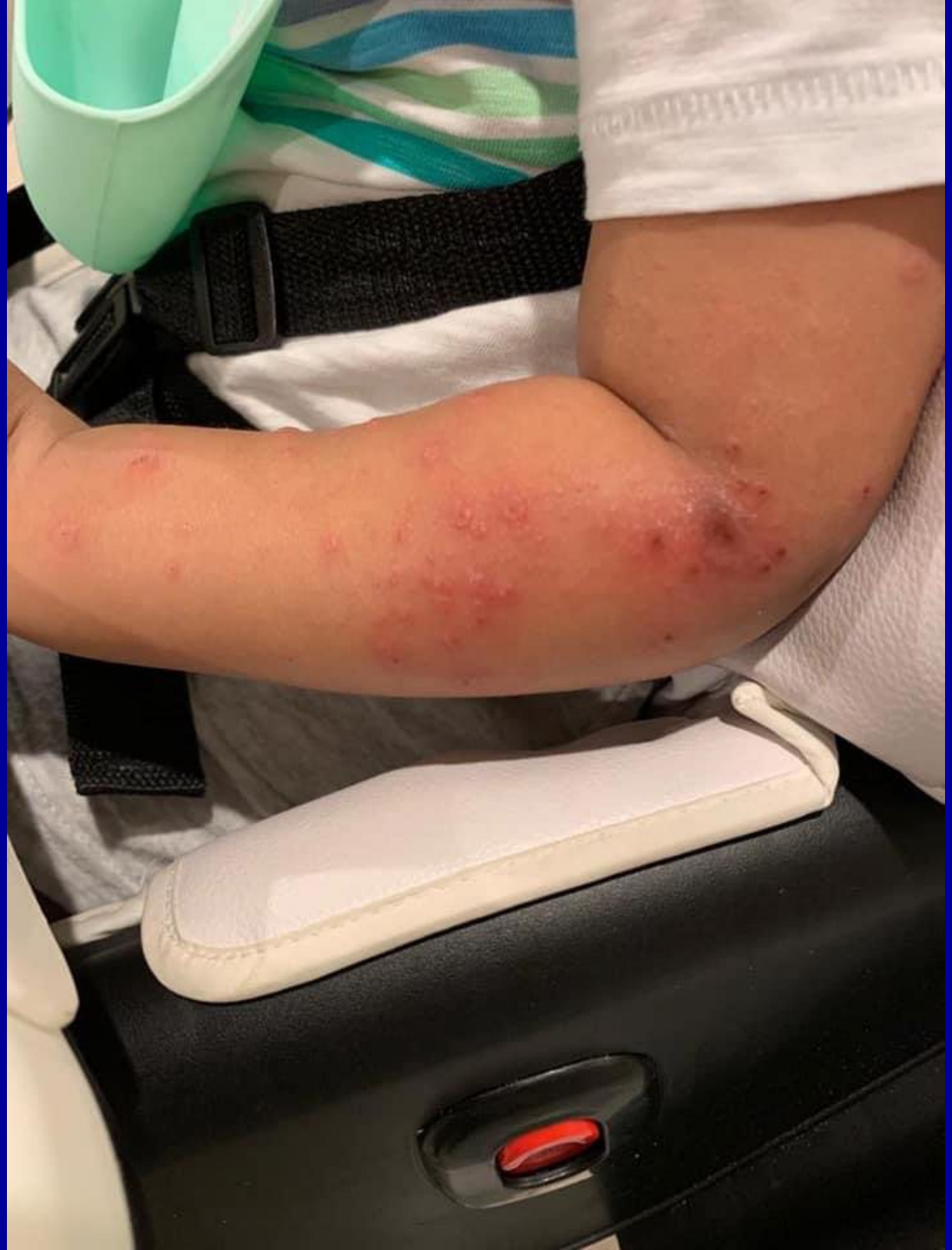

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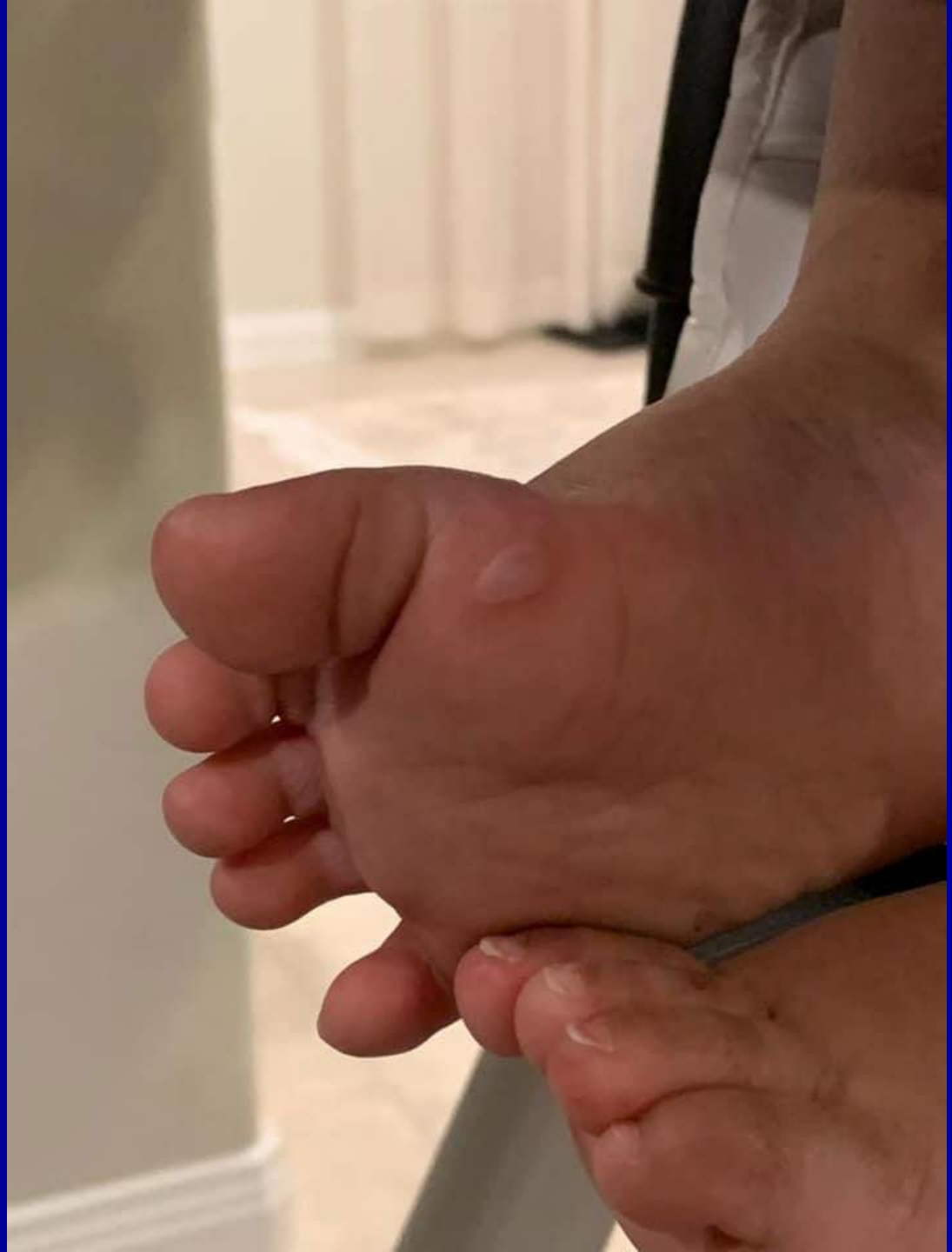

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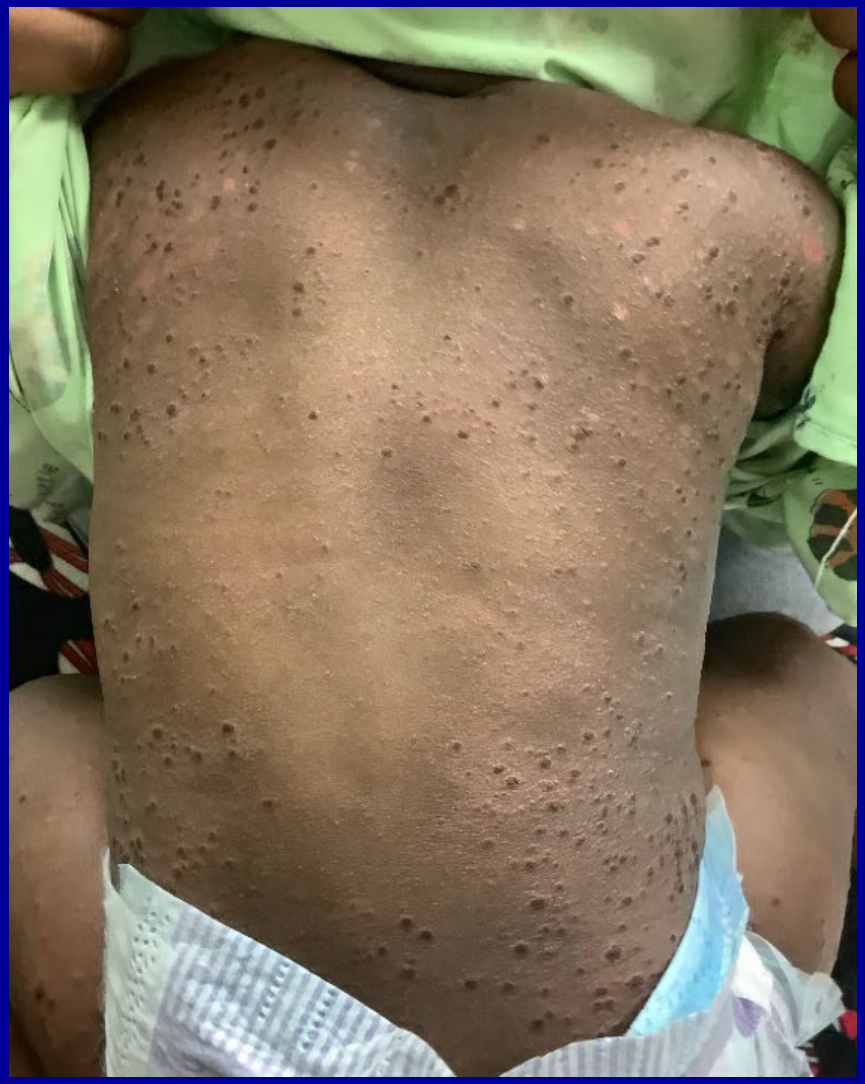
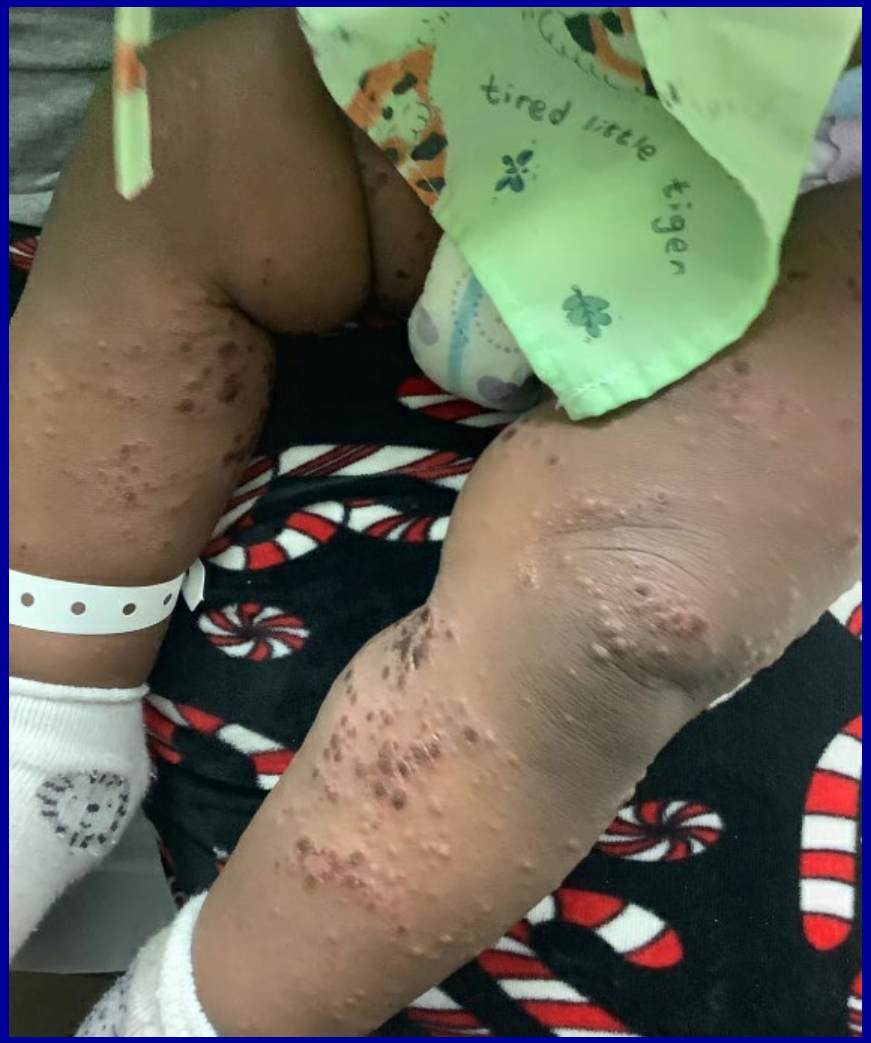
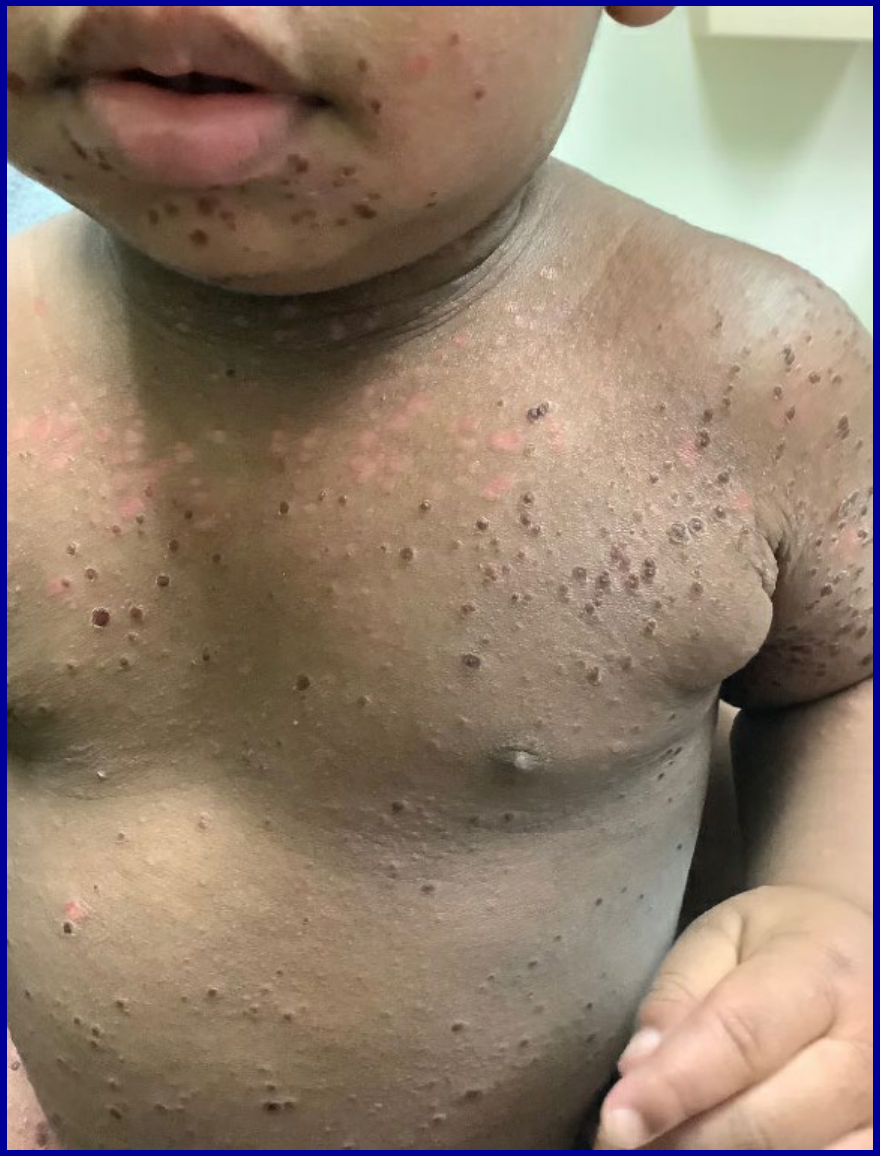
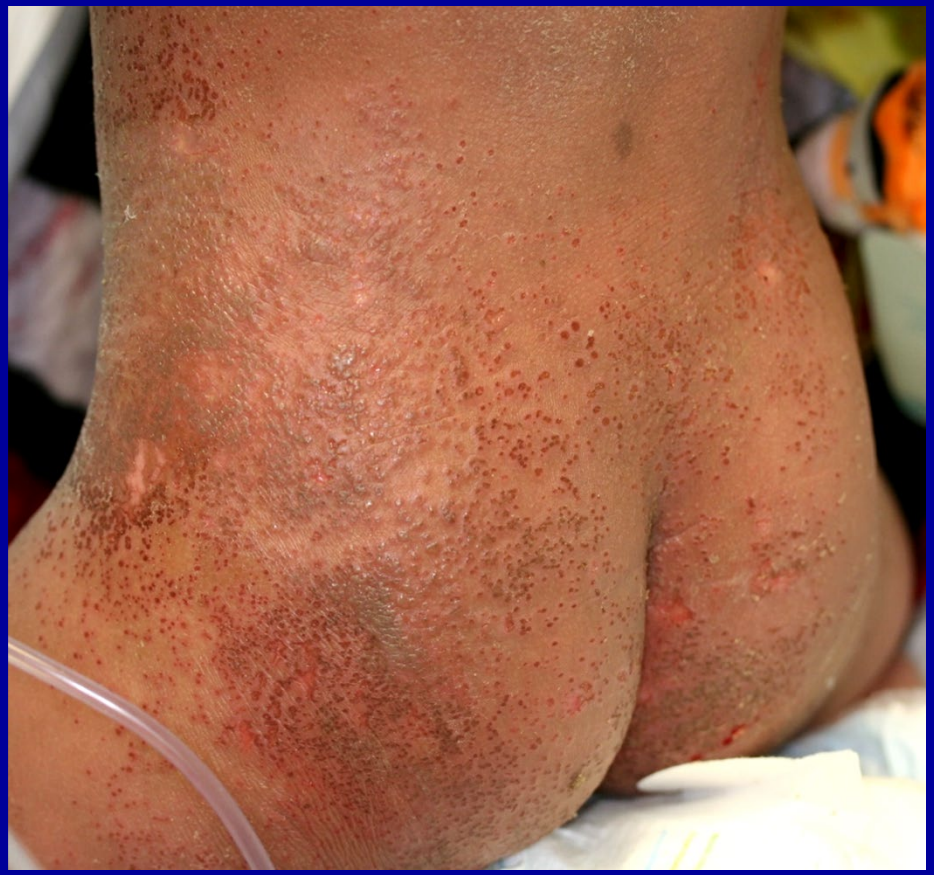
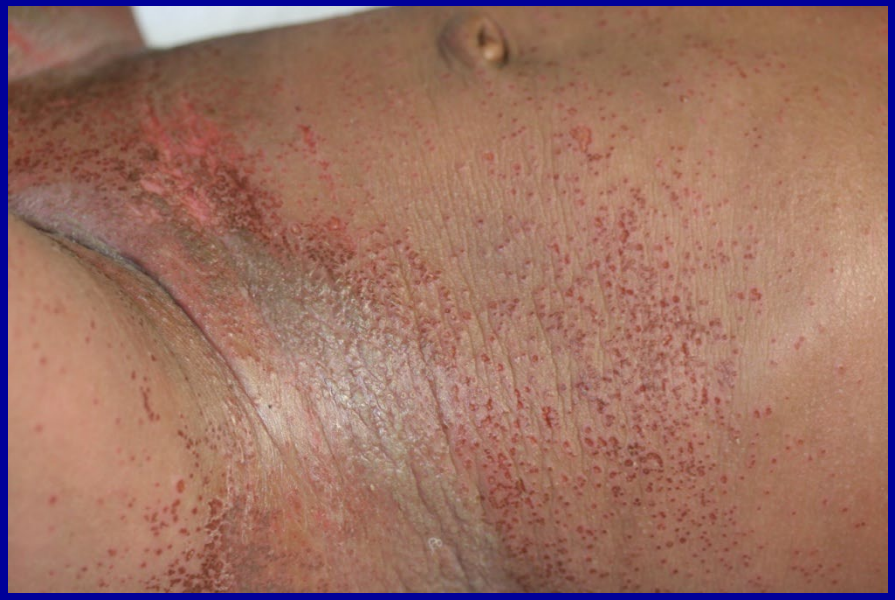



tired little tiger



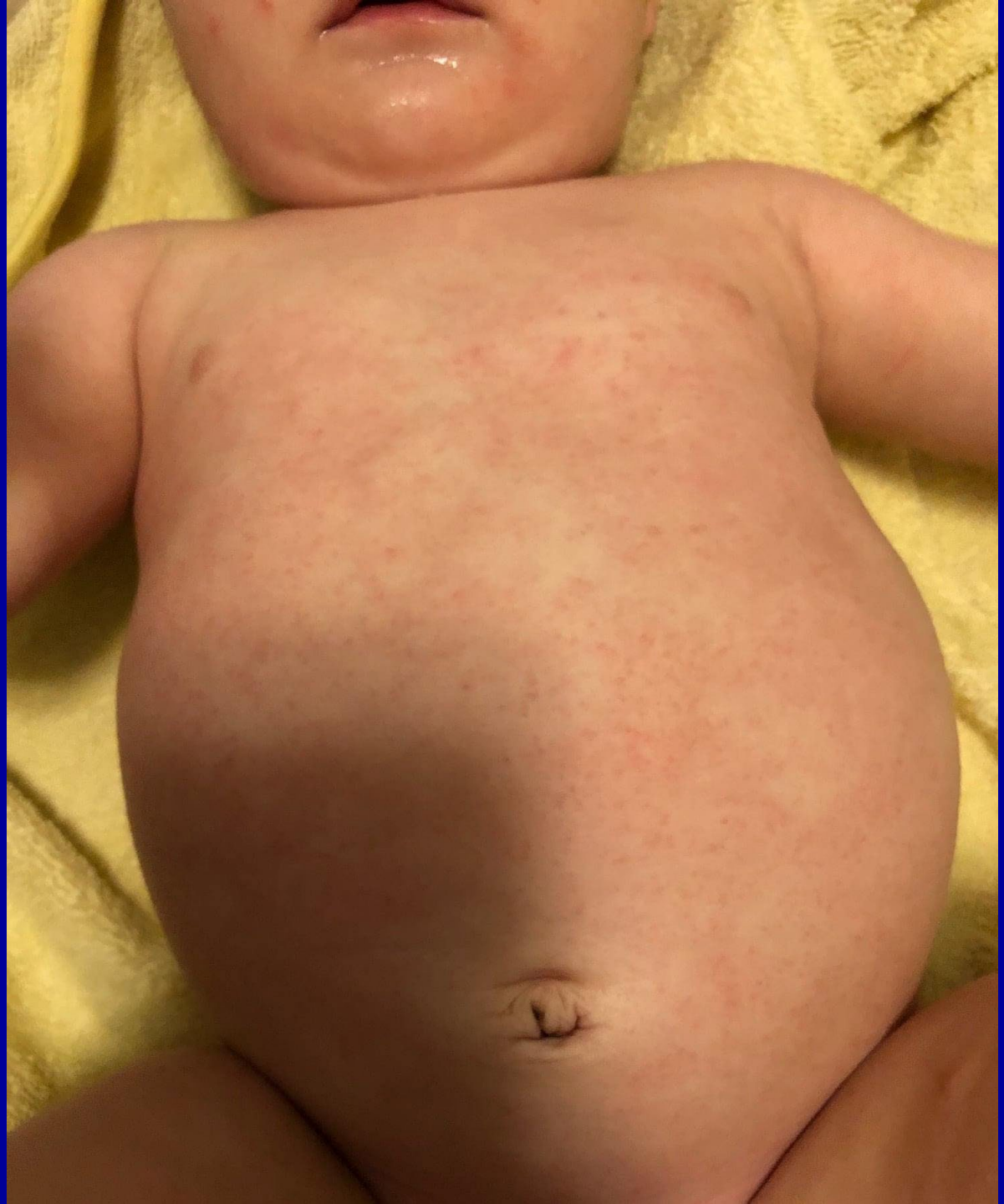
Eczema herpeticum





Not Sure?

- Serious vs. Not Serious
- Serious
  - Mucous membranes?
  - Signs of necrosis/impending necrosis?
  - Systemic involvement?
  - Does child look very ill?



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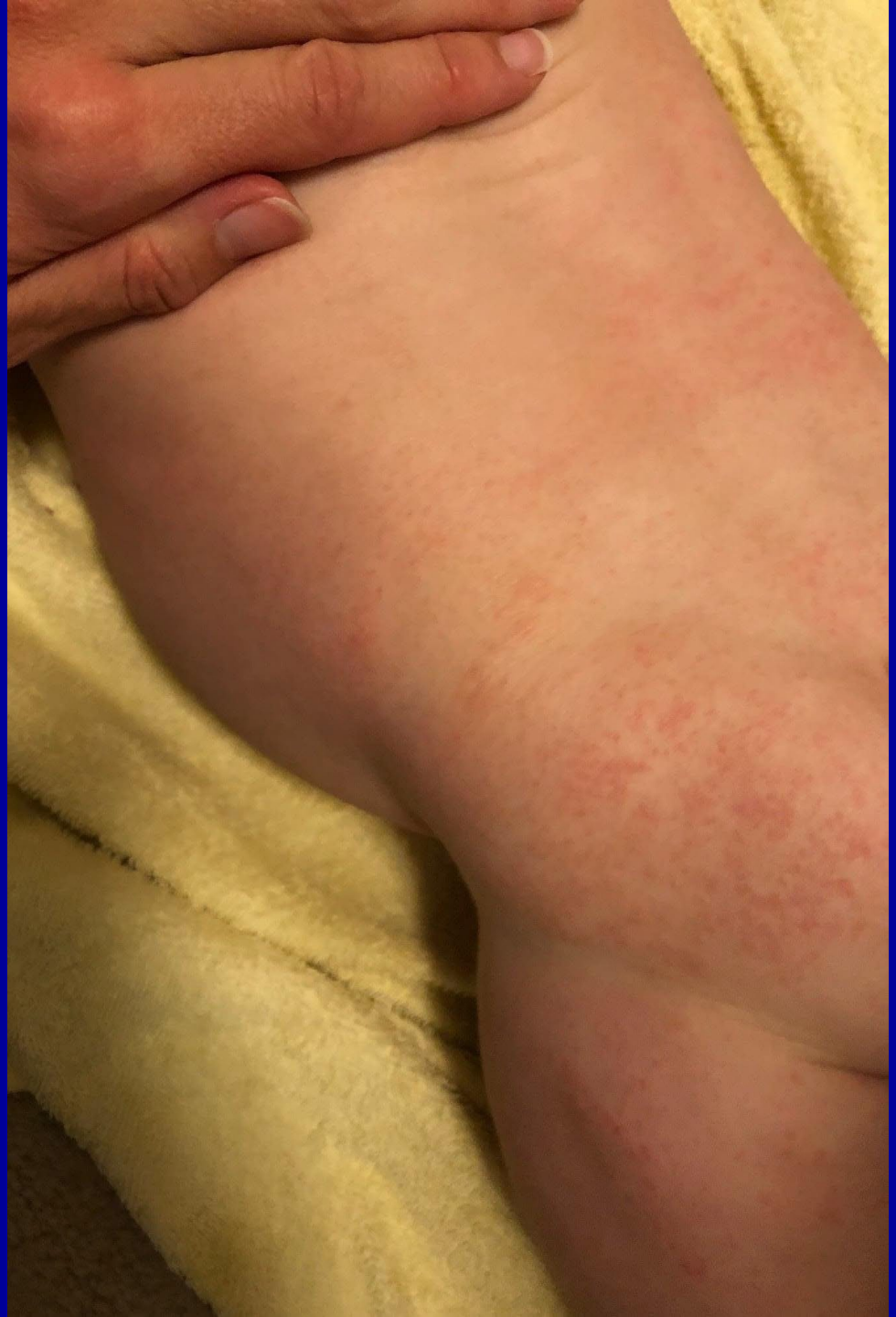

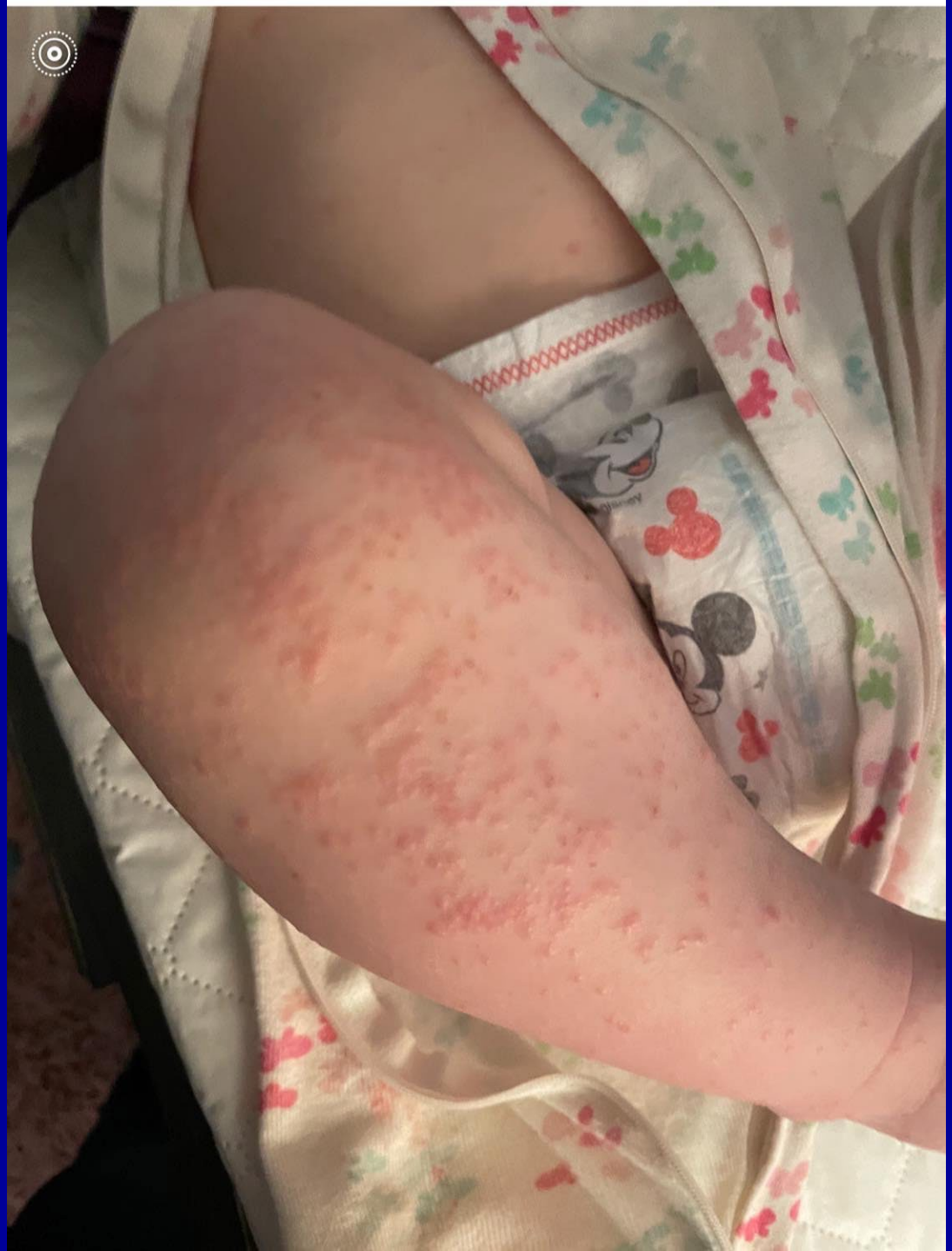

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Not Sure?

- Probably Not Serious
  - SDV (some d*** virus)
  - Treat symptoms
  - Give it some time
- Most will either resolve or declare themselves.

Thank You!

- twrigh43@uthsc.edu