Rash Decisions:

Diagnosing Common Pediatric Dermatologic Conditions

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Financial Disclosures

- I have no financial disclosures

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Goals

- Describe different dermatologic conditions by type of lesion, distribution area, history and associated symptoms
- Differentiate common infectious and allergic rashes with similar appearance
- Review management of these common pediatric rashes

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Basic History

- Age
- Duration
- Associated Symptoms
  - Itch
  - Pain
  - Fever
- Past Medical History
- Sick Contacts
- Travel/location
- Vaccinations
- Menstrual History
- Sexual History

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Focused History

- Appearance of rash
- Location of rash
- Treatments & response to therapy
- Household contacts
- History of similar rash
- New medications & exposures
- Chronic medical conditions
- Existing allergies

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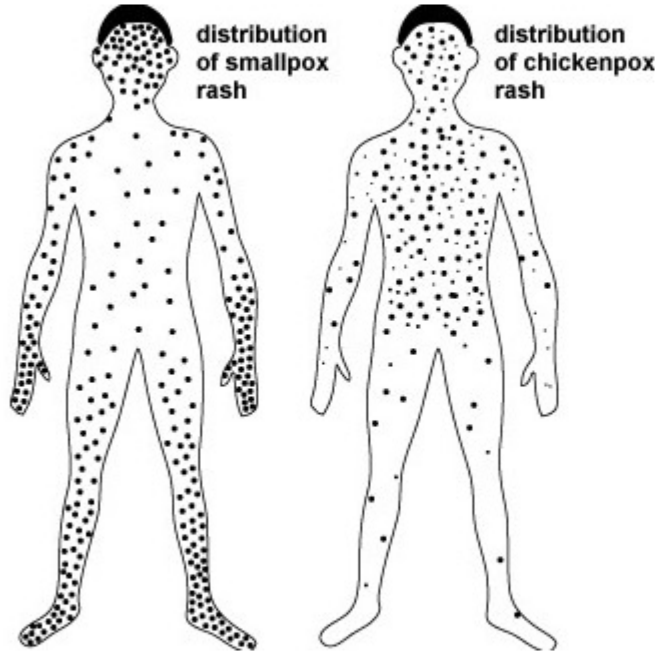
Physical Exam

- VITAL SIGNS!
- Targeted physical exam
- Distribution
  - Central
  - Peripheral
  - Flexural surfaces
  - Extensor surfaces
  - Intertriginous
  - Dermatomal
  - Mucosal



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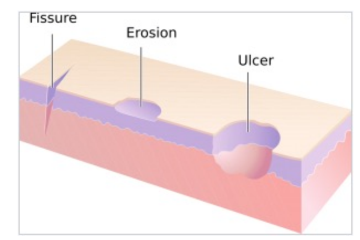
Rash Nomenclature

Small lesions (<0.5cm)

Name	Raised/Palpable	Fluid-Filled	Other Description	Diagram
Macule	No	None	flat, cirumscribed, colored	Macule
Papule	Yes	None	Solid	Papule
Vesicle	Yes	Clear		Vesicles
Pustule	Yes	Pus	Leukocytes or keratin	Pustules

Large lesions (>0.5cm)

Name	Raised/Palpable	Fluid-Filled	Other Description	Diagram
Patch	No	None	Large macule (flat, colored)	Patch
Plaque	Yes	None	Superficially raised, circumscribed solid area	Plaque
Nodule	Yes	None	Distinct large papule	Exophytic nodule Endophytic nodule
Bulla	Yes	Clear	Large vesicle/blister or exposed epidermal layer	Bulla
Wheal	Yes	Edema	Firm and edema of dermis	



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Appearance/Morphology

- Type of lesion
- Shape of individual lesions
- Arrangement of lesions
- Scaly/moist
- Color
- Hyper/hypopigmentation
- Honey crusted
- Umbilicated
- Blanching
- Palpable
- Secondary characteristics

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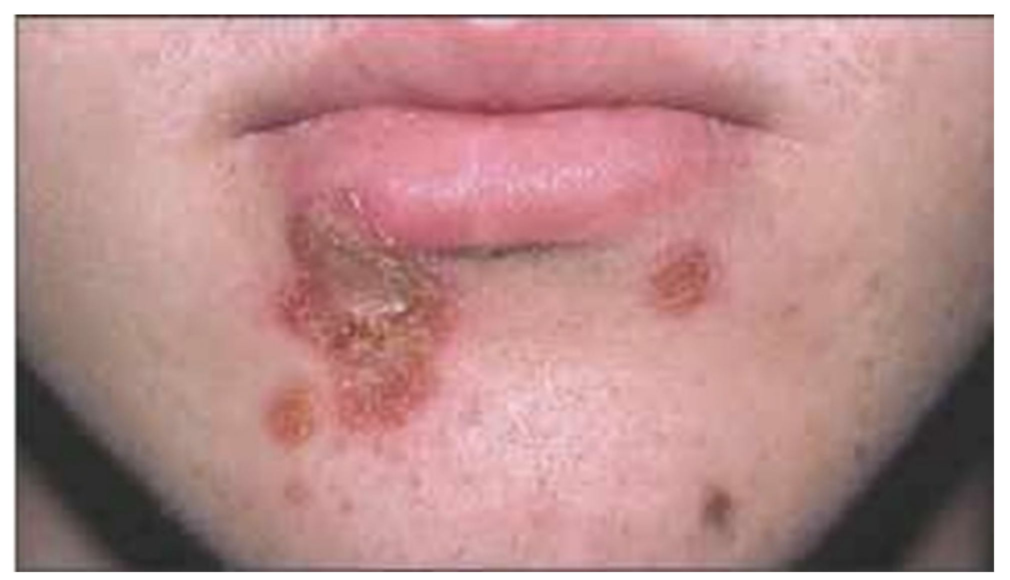
Case 1



6 yo male presents with painless lesions near his mouth for 2 days. He is otherwise well, no other symptoms.

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Case 1

The most appropriate treatment would be…

A. Topical mupirocin

B. Oral cephalexin

C. Topical acyclovir

D. Oral acyclovir

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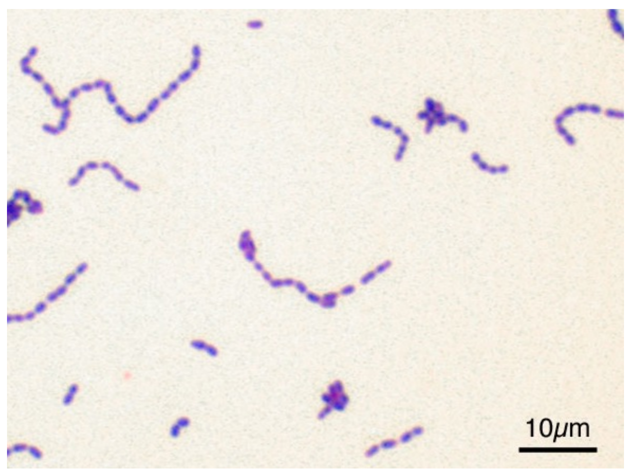
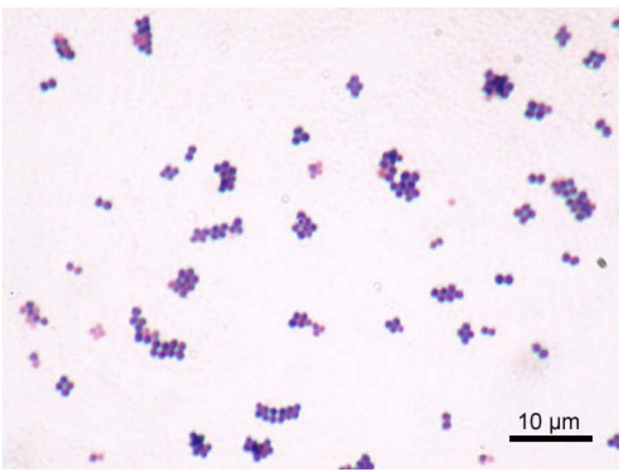
Impetigo

- Most common skin infection
- Group A Strep or Staph aureus
- Types:
  - Non-bullous impetigo
  - Bullous impetigo
  - Ecthyma





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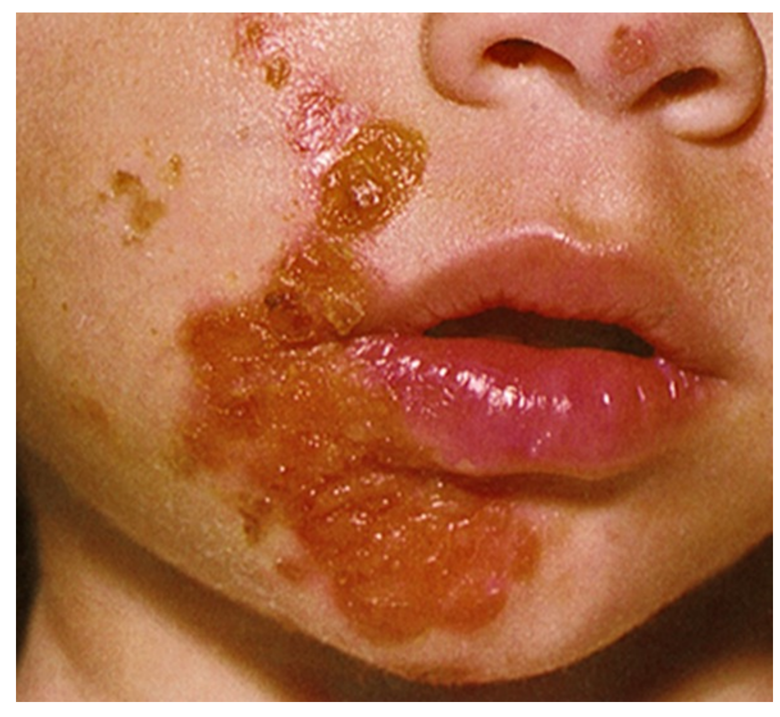
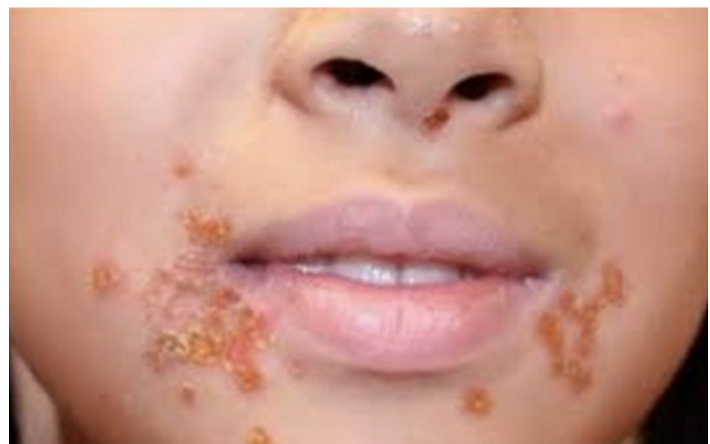
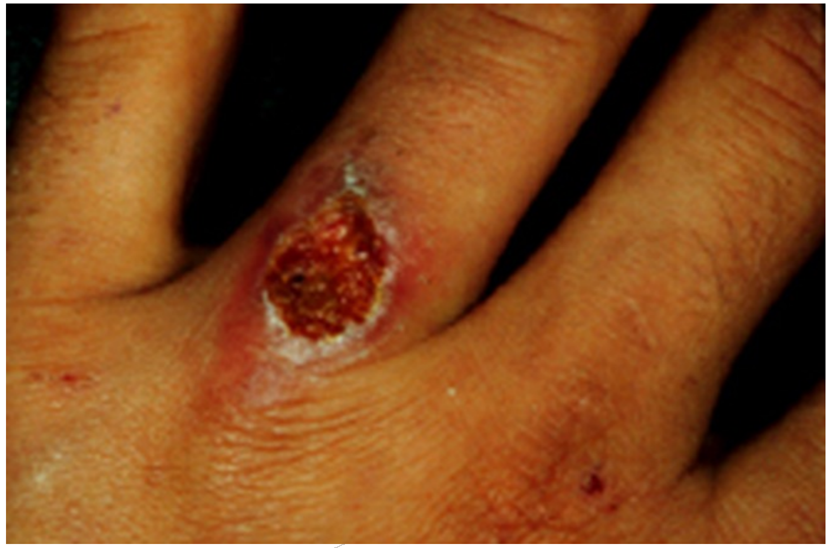
Non-bullous Impetigo







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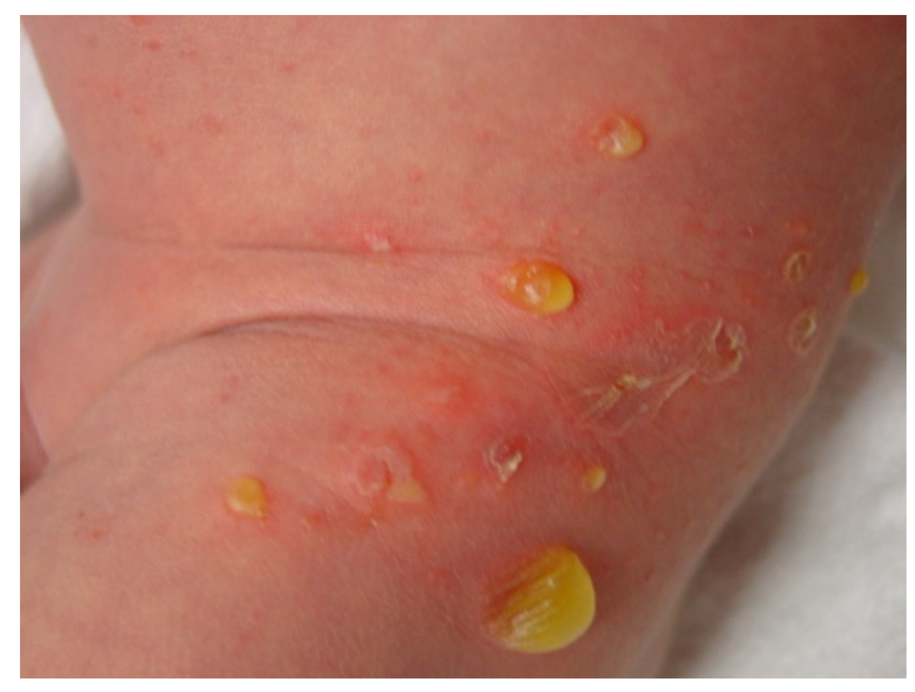
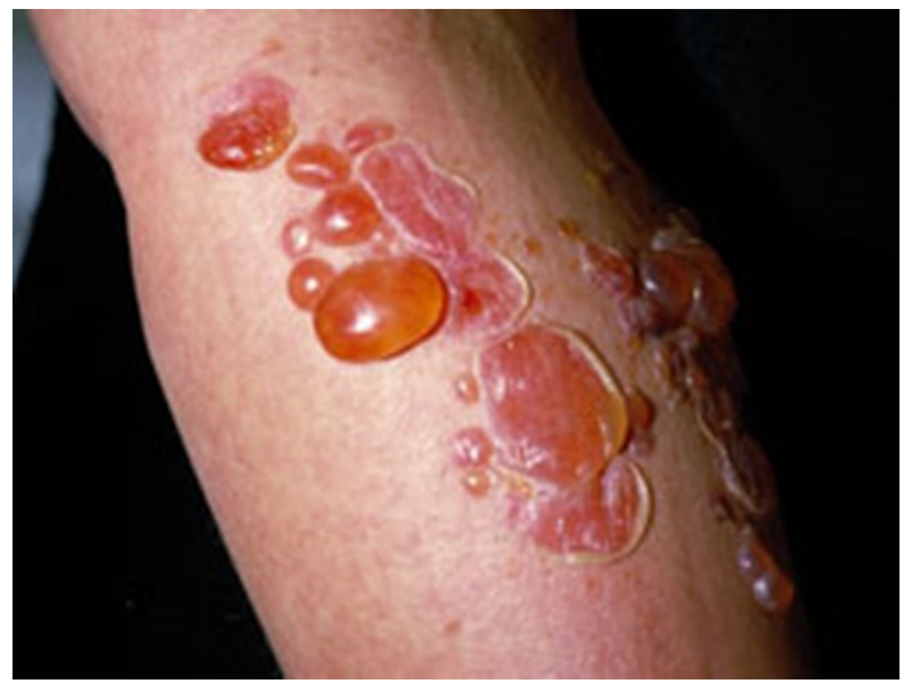
Bullous Impetigo





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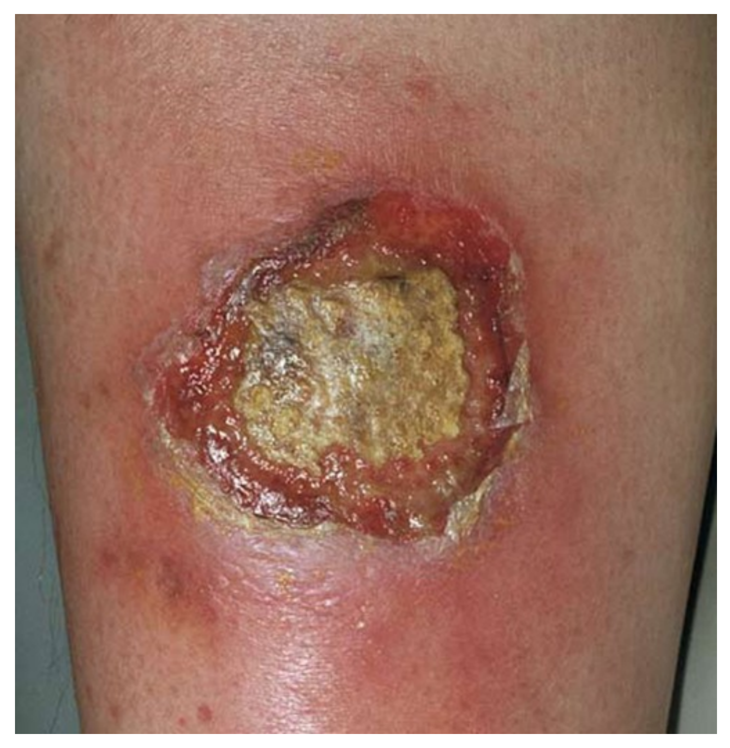
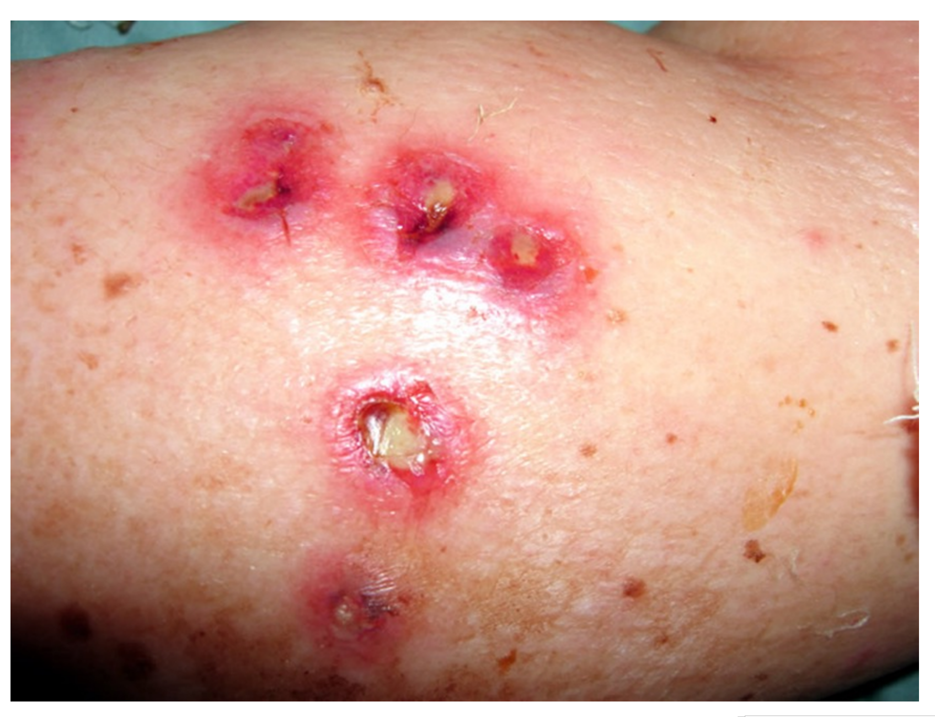
Ecthyma





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Impetigo - Management

DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

- Milder cases – Topical mupirocin
- More Severe Cases – Oral antibiotics
  - **Cephalexin**
  - Dicloxacillin
  - Clindamycin
  - Trimethoprim-sulfamethoxazole

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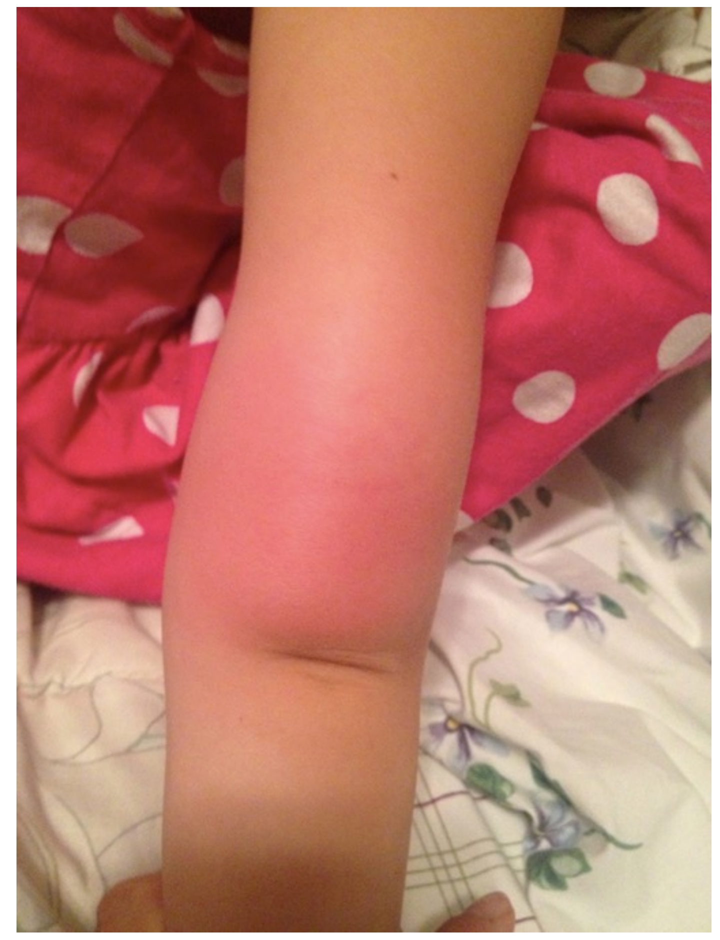
Case 2



4 yo female presents with redness and swelling on her upper arm. Mom reports she had an insect bite at this site last evening. The child is well appearing with normal vital signs. The site is erythematous with warmth but no tenderness.

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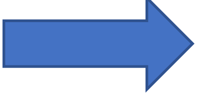
Case 2

The most appropriate treatment would be…

A. Topical mupirocin

B. Oral cephalexin



C. Oral cetirizine

D. Oral prednisolone

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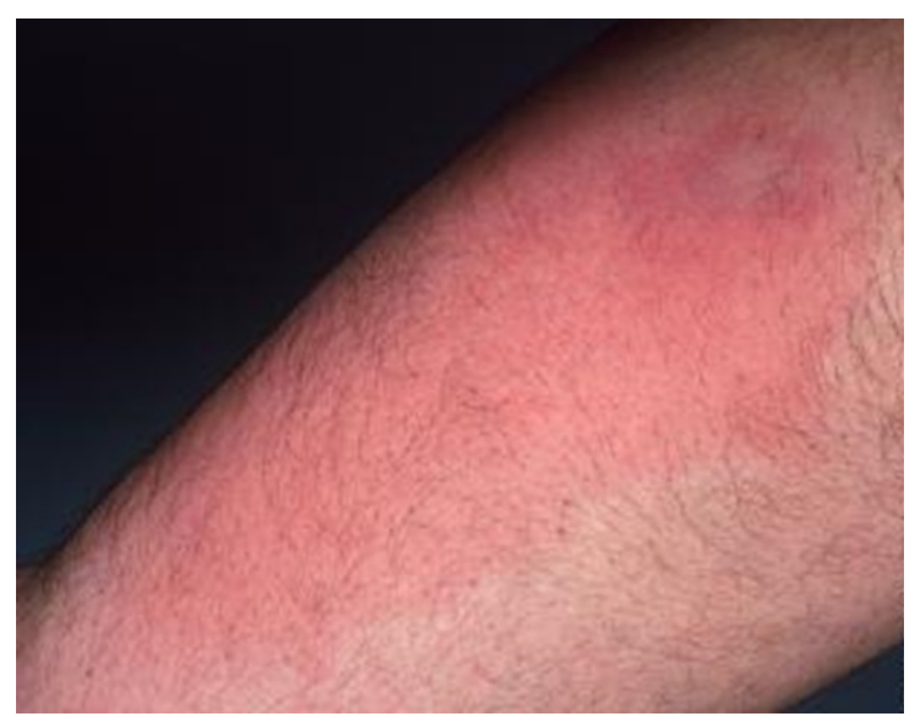
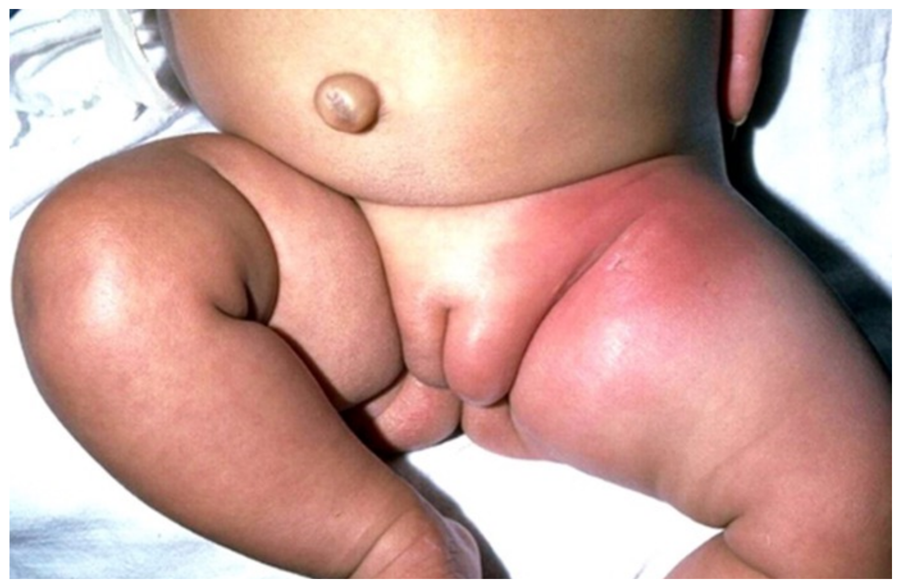
Cellulitis





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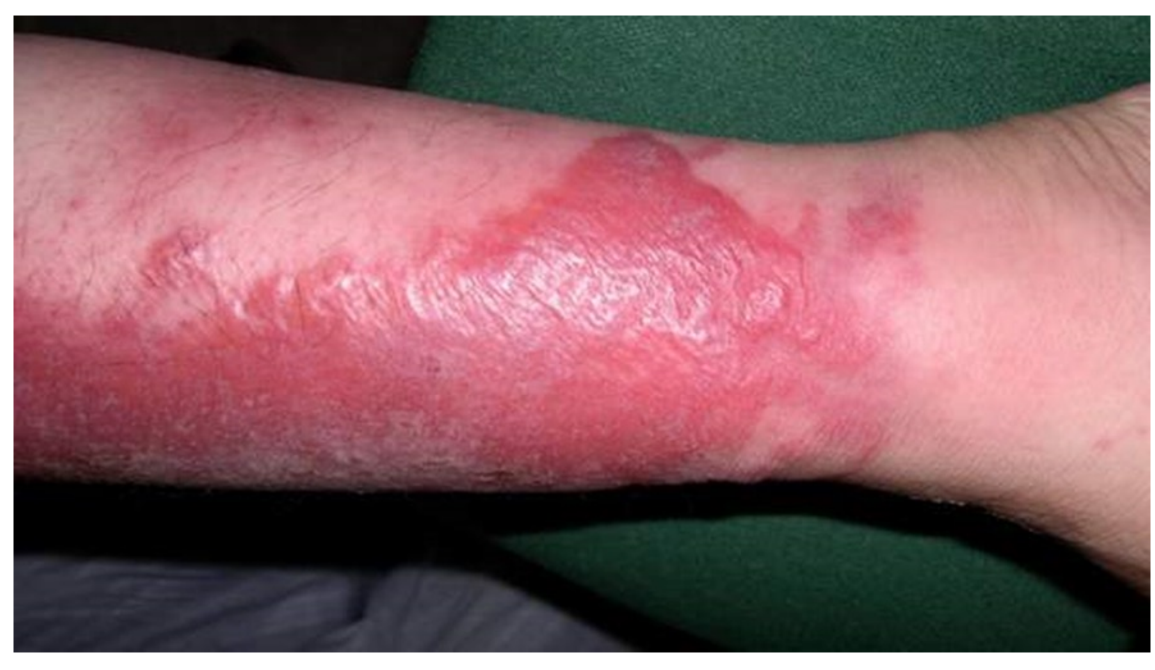
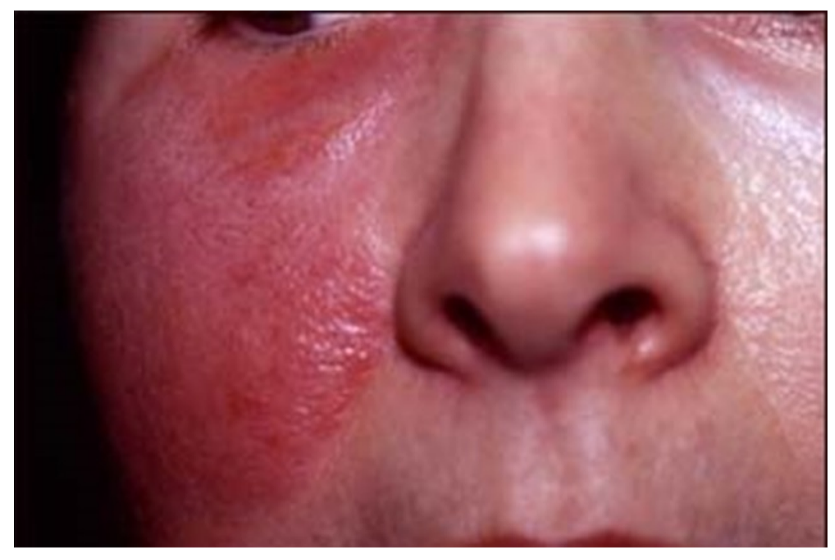
Erysipelas





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Cellulitis & Erysipelas

Cellulitis

- Beta-hemolytic strep, Staph aureus
- Involves deeper dermis and subcutaneous fat
- Poorly demarcated
- More indolent course

Erysipelas

- Beta-hemolytic strep
- Involves upper dermis and superficial lymphatics
- Raised lesion with clear line of demarcation
- Acute onset with systemic manifestations

Management: oral antibiotics, with admission for severe cases or neonates

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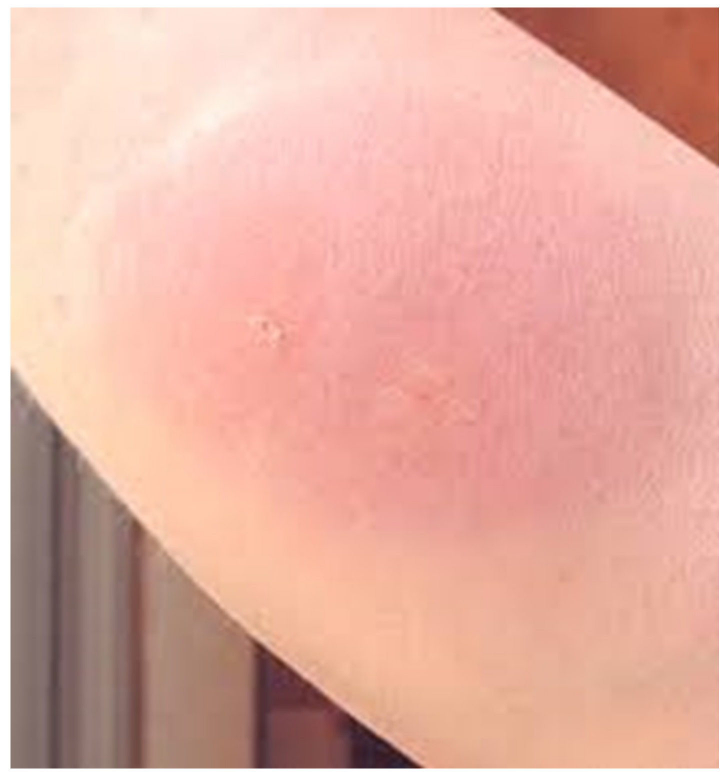
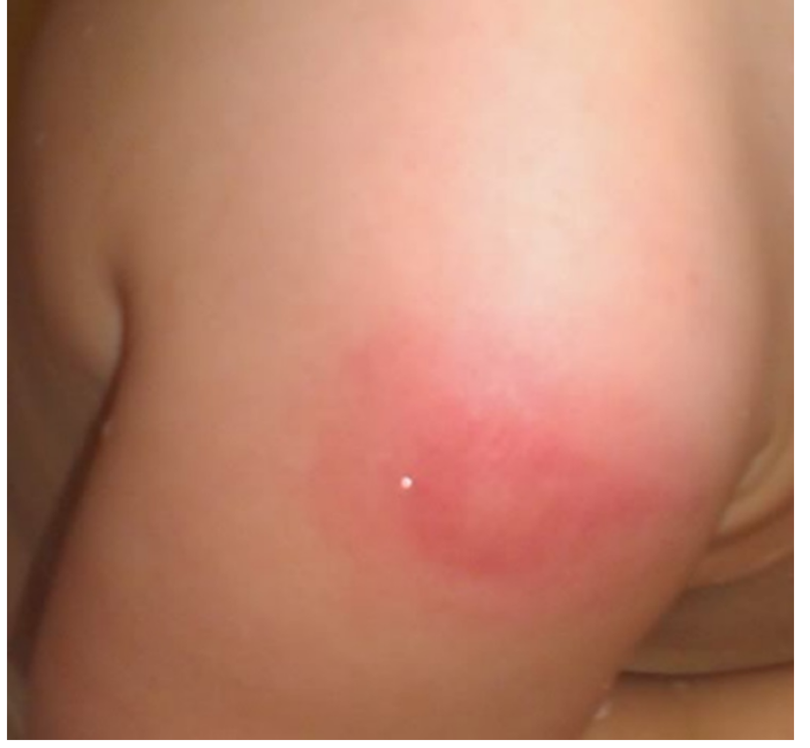
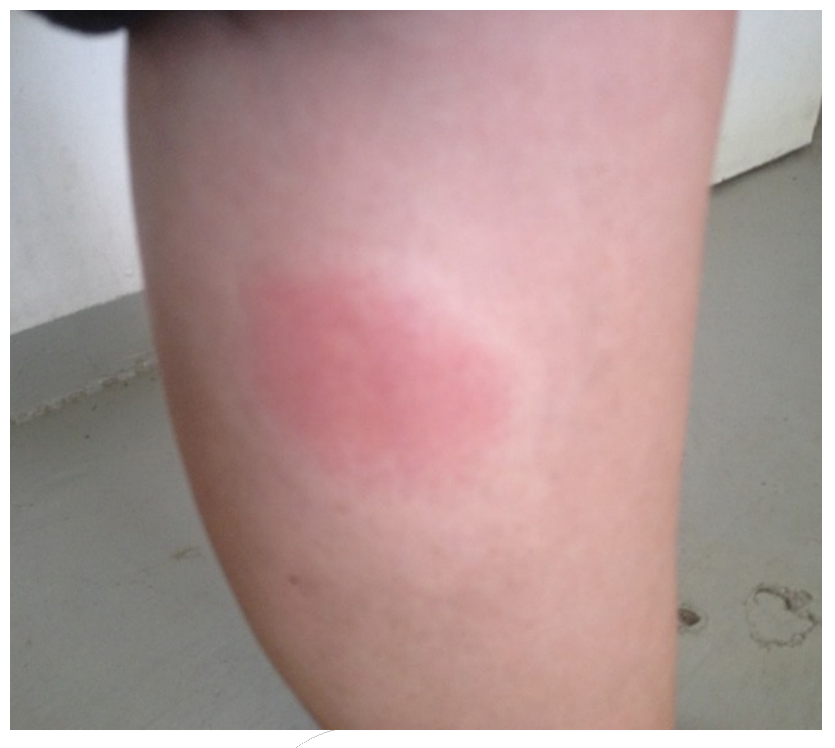
Local reaction







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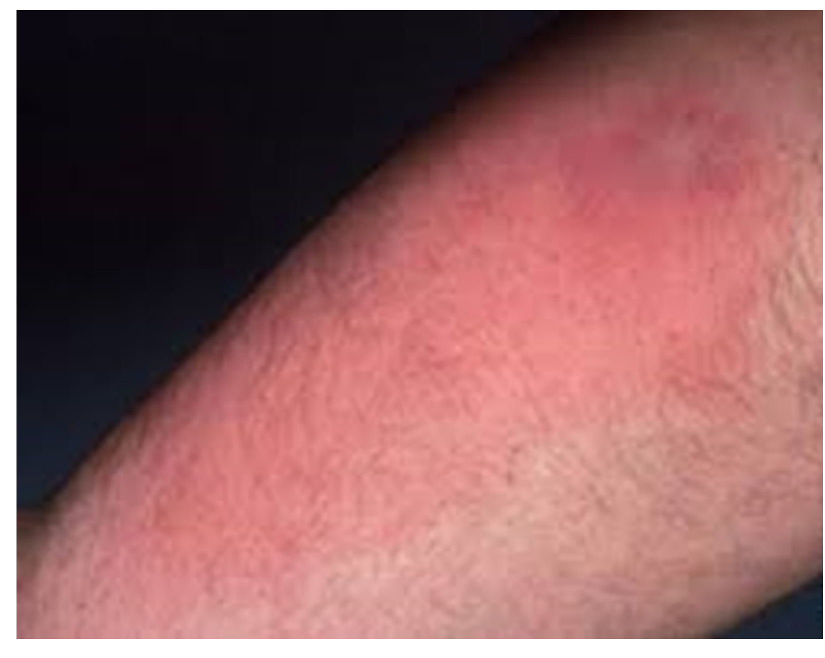
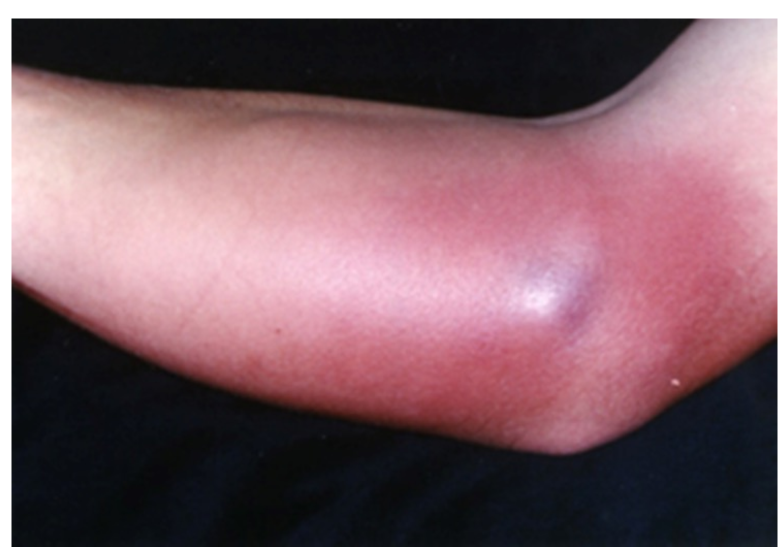
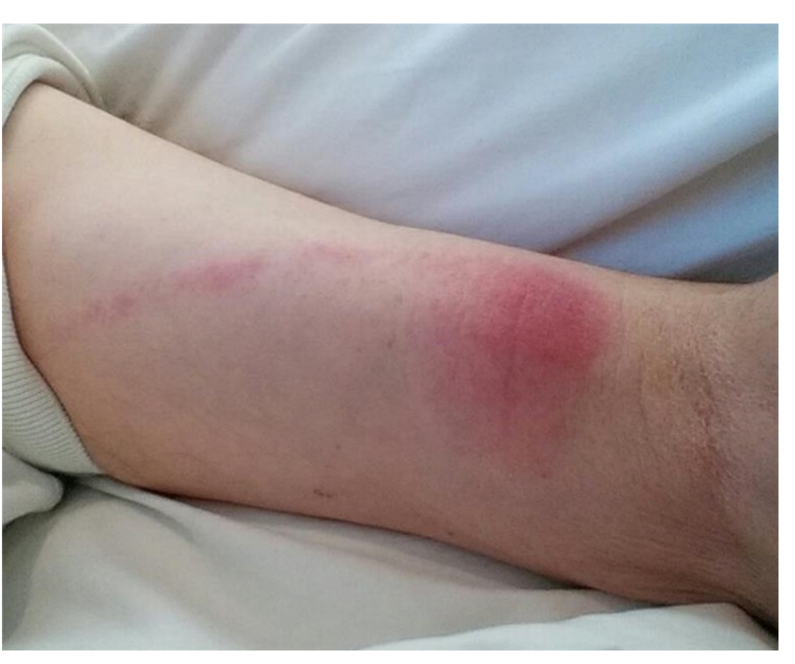
Cellulitis







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Local reaction

The Pediatric Urgent Care Conference
PUCC @ UCA

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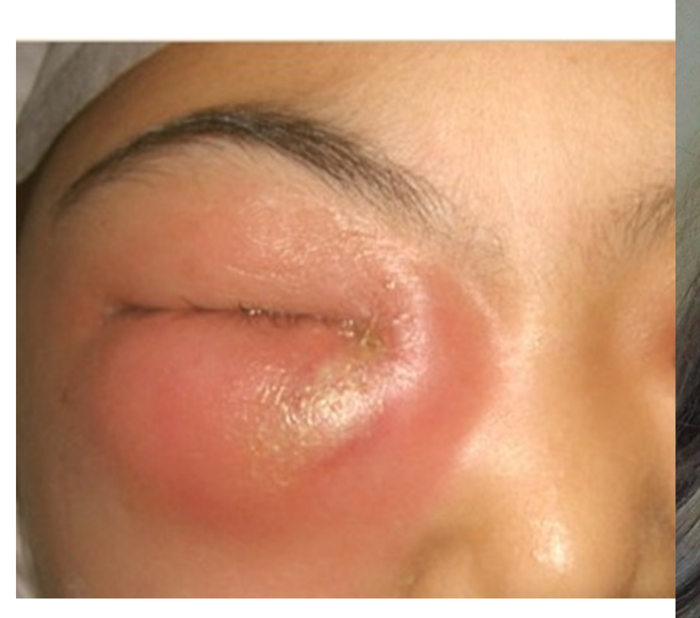
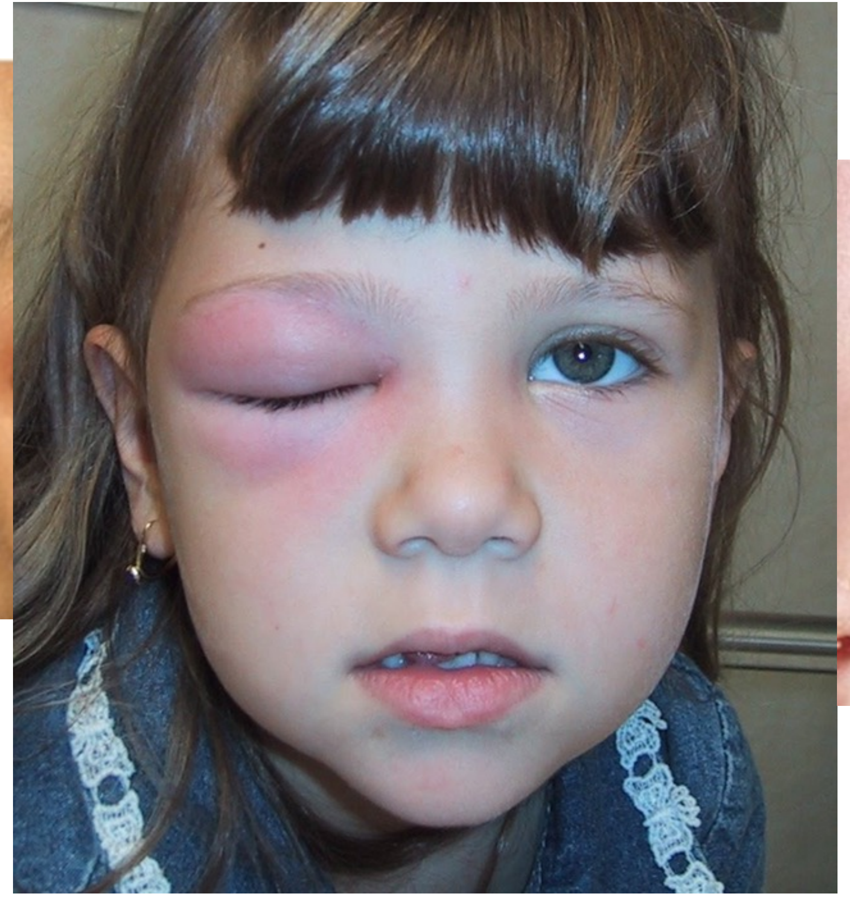
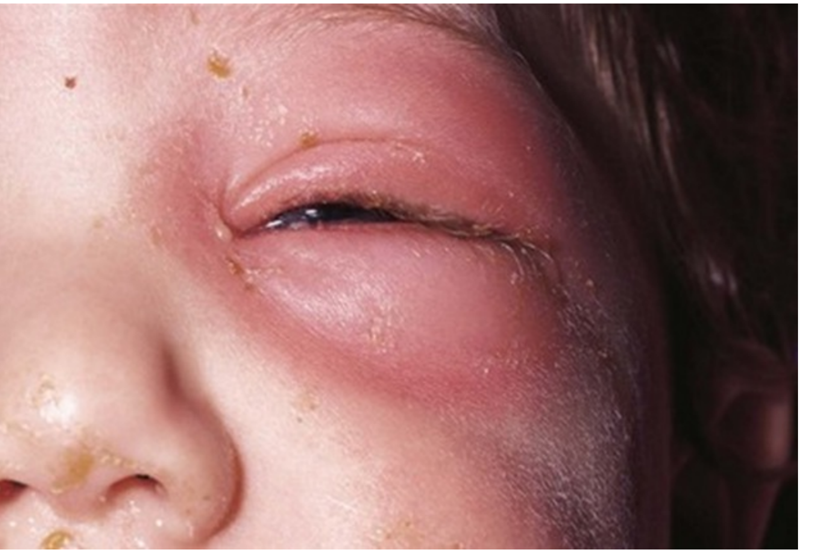
Cellulitis







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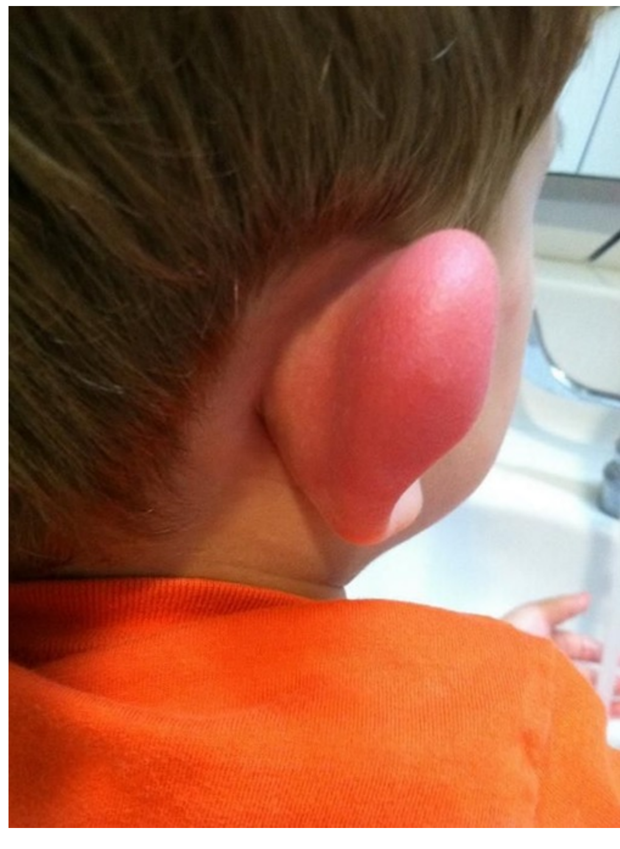
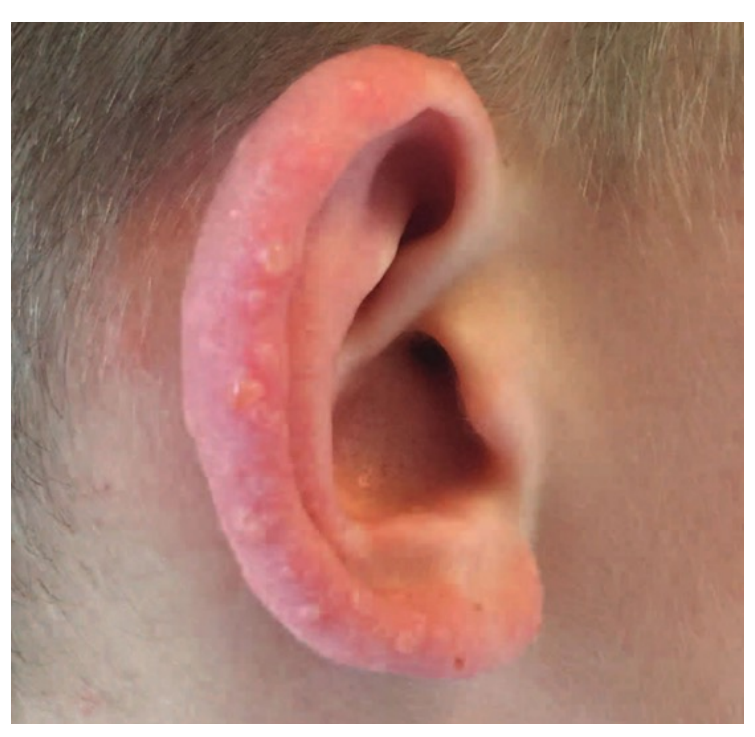
Local reaction



Insect bites, contact dermatitis



Juvenile spring eruption

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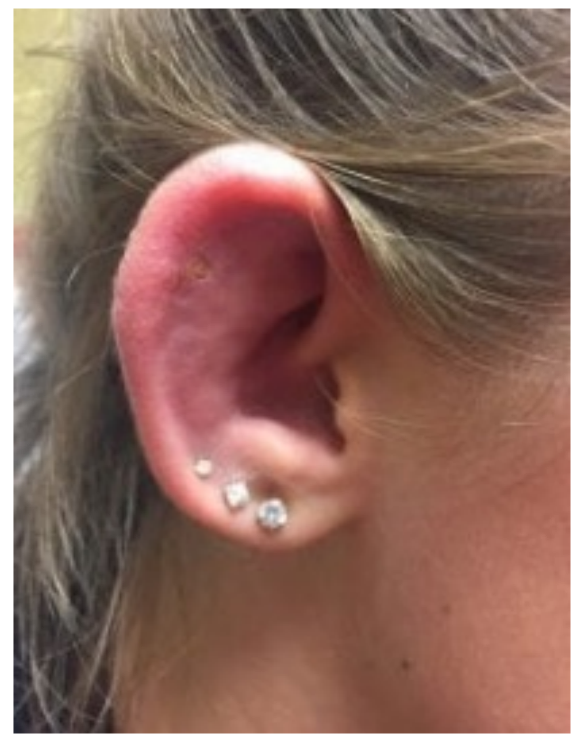
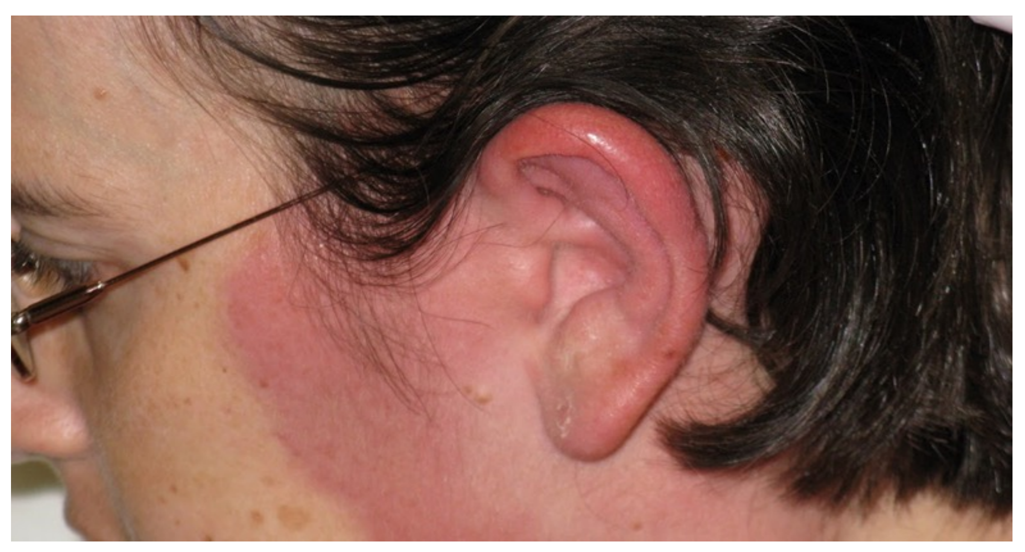
Cellulitis





Perichondritis

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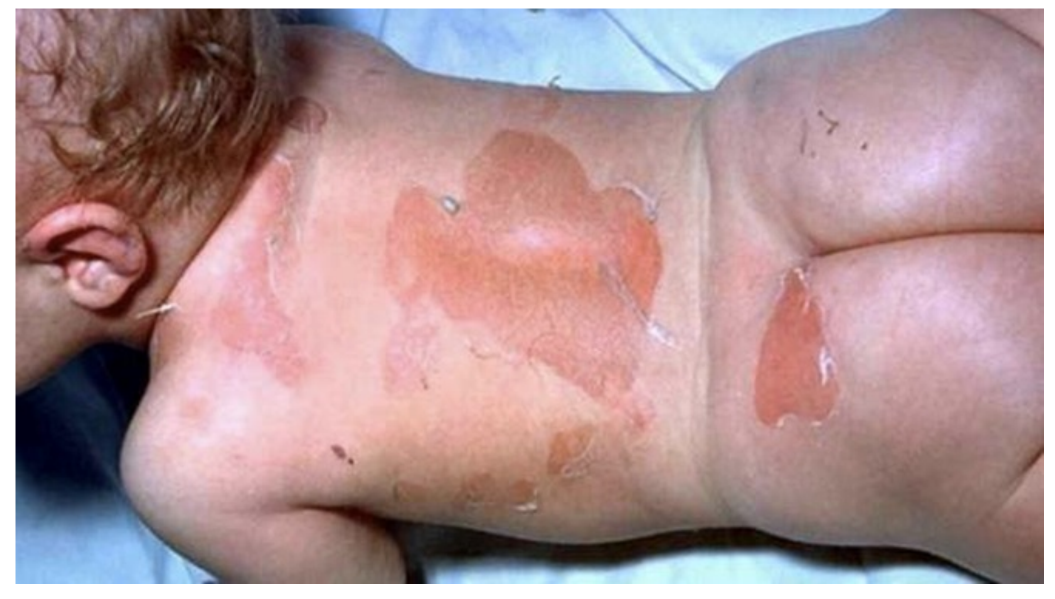
Case 3

4 mo male presents with fever since yesterday and a generalized macular erythematous rash that appeared this morning. Mother is concerned because baby seems to be in pain when she touches the rash, and skin seems to peel when she wipes him.



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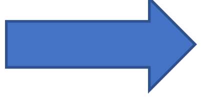
Case 3

You suspect…

A. Cellulitis

B. Epidermolysis bullosa



C. Scalded skin syndrome

D. Stevens-Johnson syndrome

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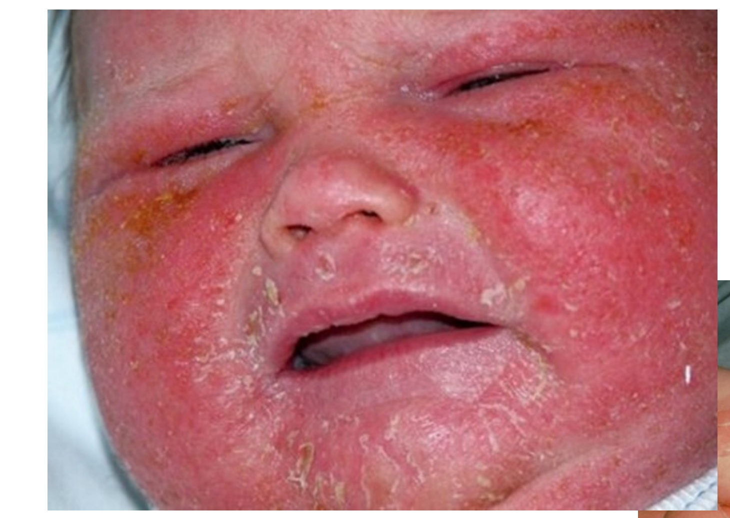
Staphylococcal Scalded Skin Syndrome

- Children < 6 years old, newborns
- Exfoliative toxins
- Initial pharyngitis, conjunctivitis, rhinorrhea, or impetigo
- Fever & irritability followed by rash
- Nontoxic appearing
- Nikolsky's sign



Management – Transfer to Hospital for parenteral antibiotics and supportive care (similar to burn care)

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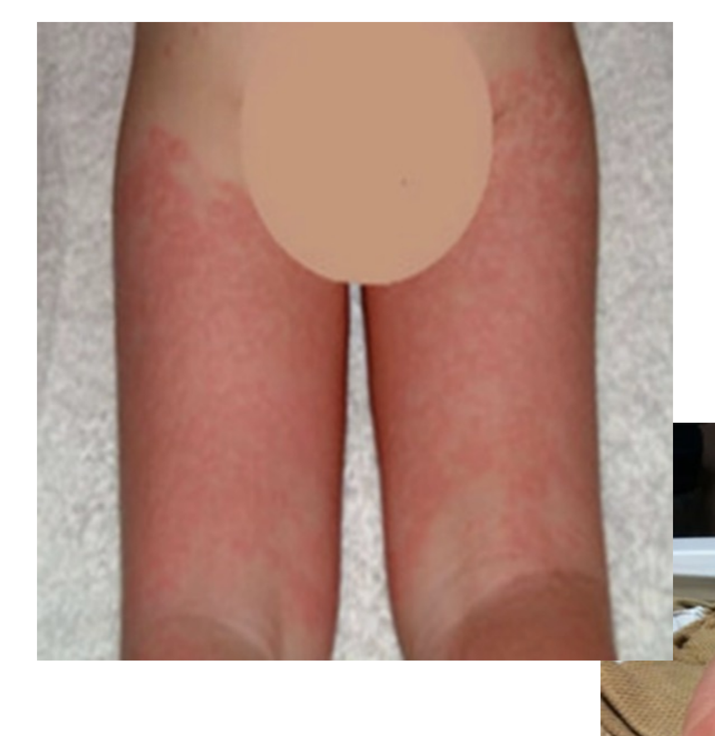
Toxic Shock Syndrome

Associated with highly-absorbent tampons



- Diffuse erythroderma (like sunburn), including palms and soles
- TRIAD = Fever, hypotension, rash
- 3 organ involvement
- Desquamation 1-2 weeks later

Management - Transfer to Hospital for parenteral antibiotics, aggressive fluid management, supportive care

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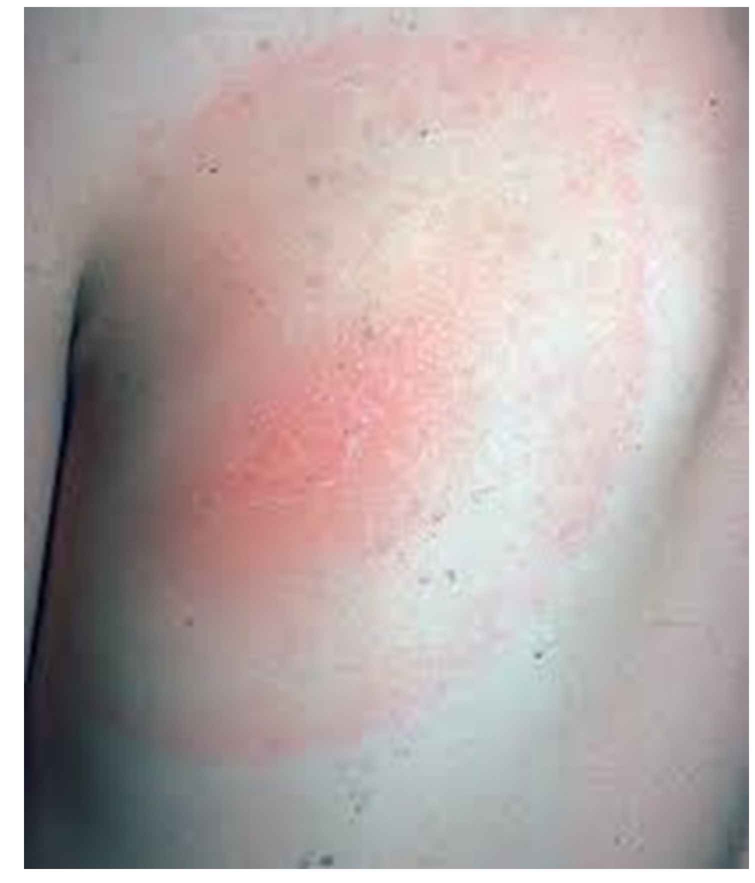
Name this rash…



A. Nummular eczema

B. Tinea corporis

C. Erythema marginatum

D. Erythema migrans

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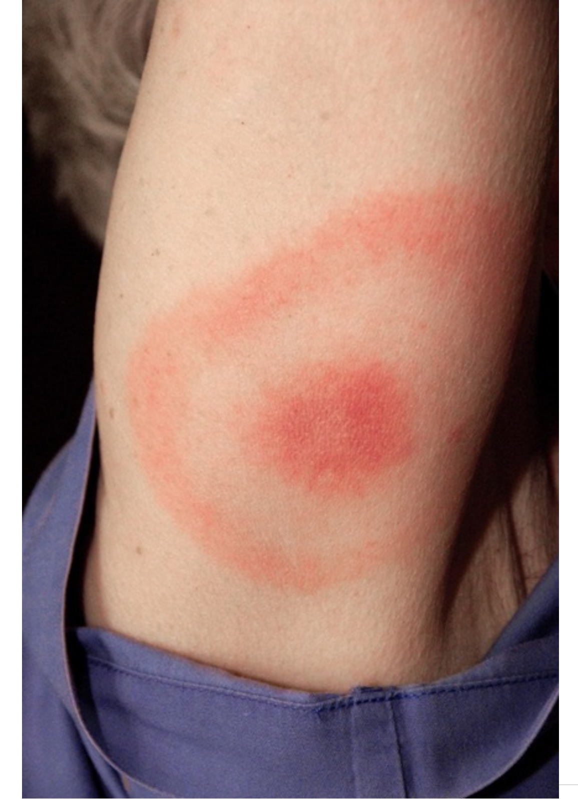
Erythema migrans

- Early localized Lyme disease (borrelia burgdorferi)
- Initial red macule at site of tick bite
- Large annular, erythematous lesion, flat without scale, rarely painful
- Systemic findings: fever, fatigue, headache, neck pain, arthralgia, myalgia



Management -Treat with **doxycycline**, amoxicillin

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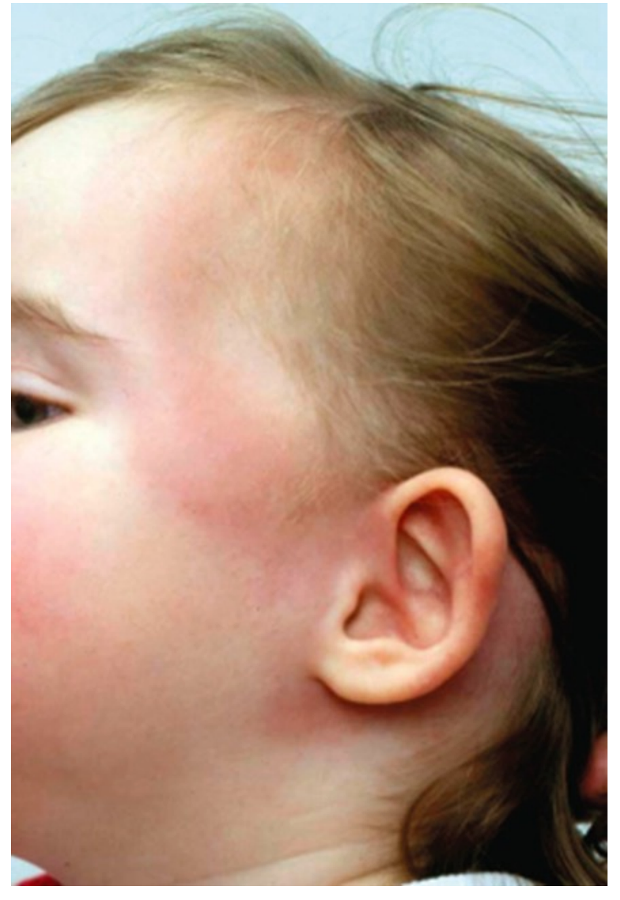
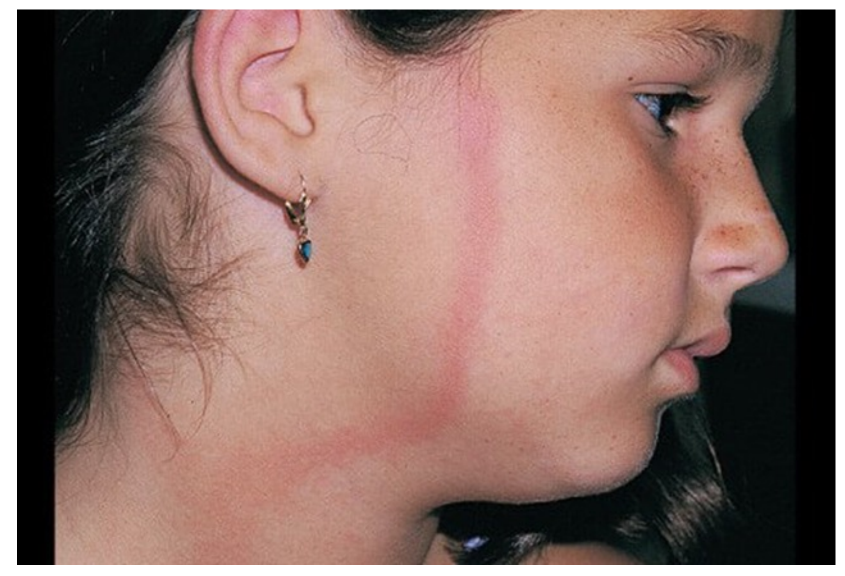
Erythema Migrans





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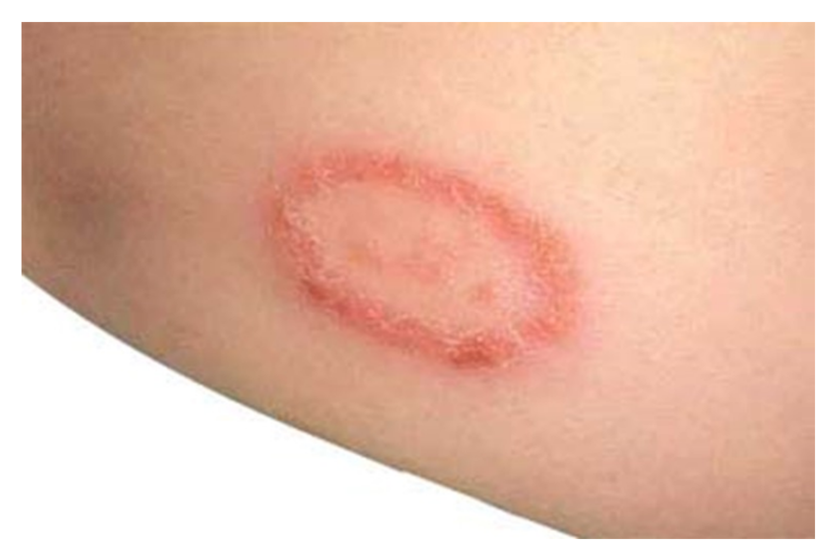
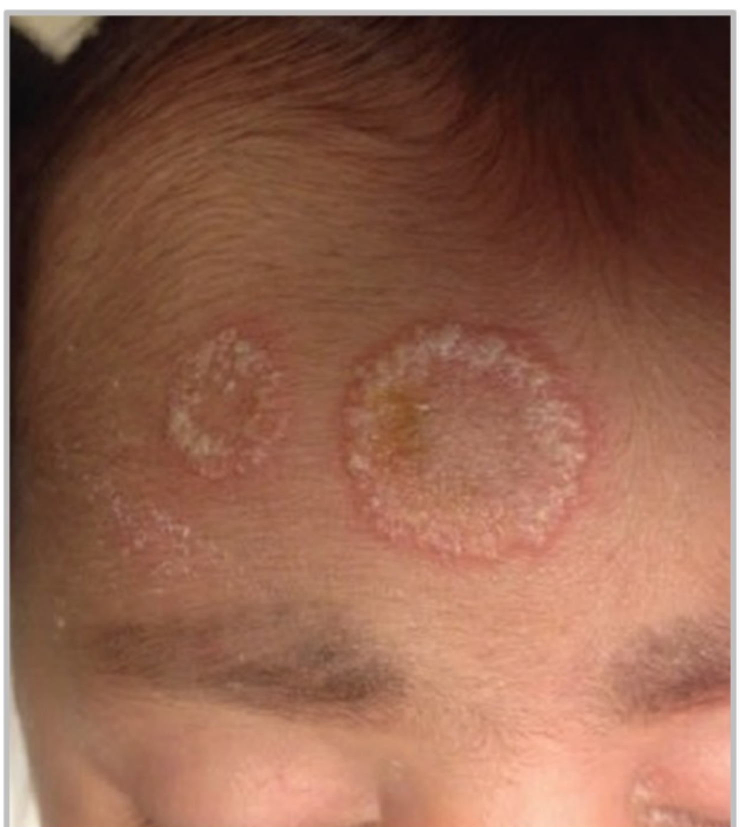
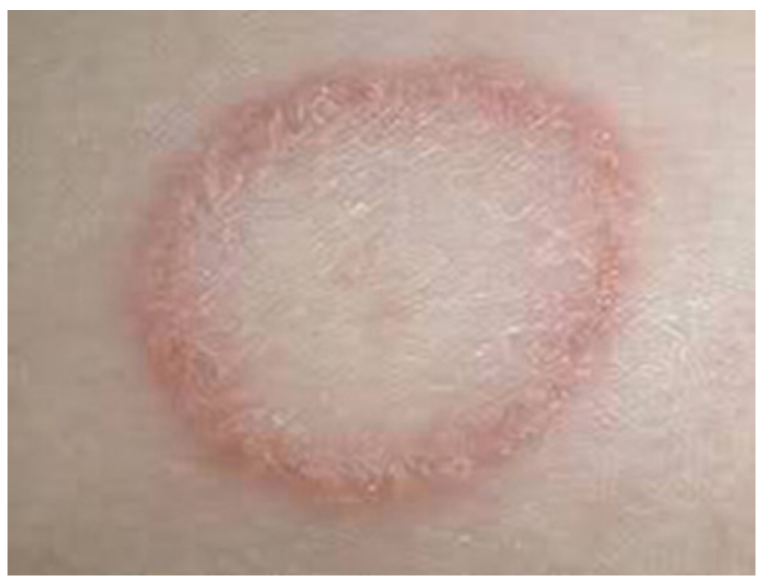
Tinea







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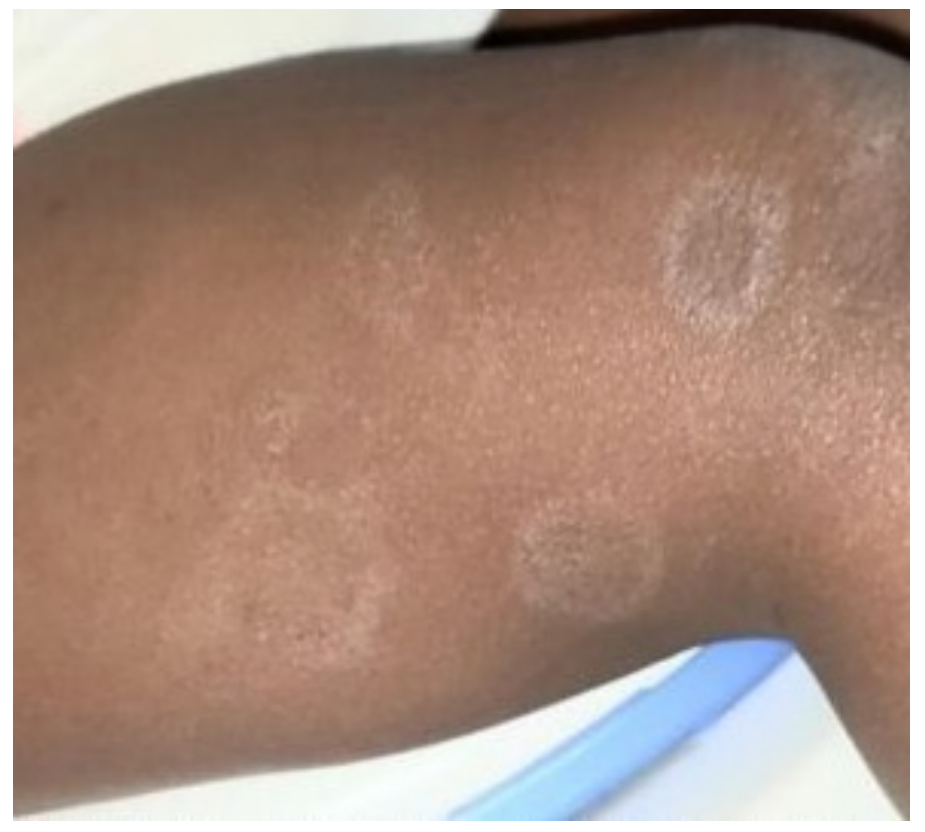
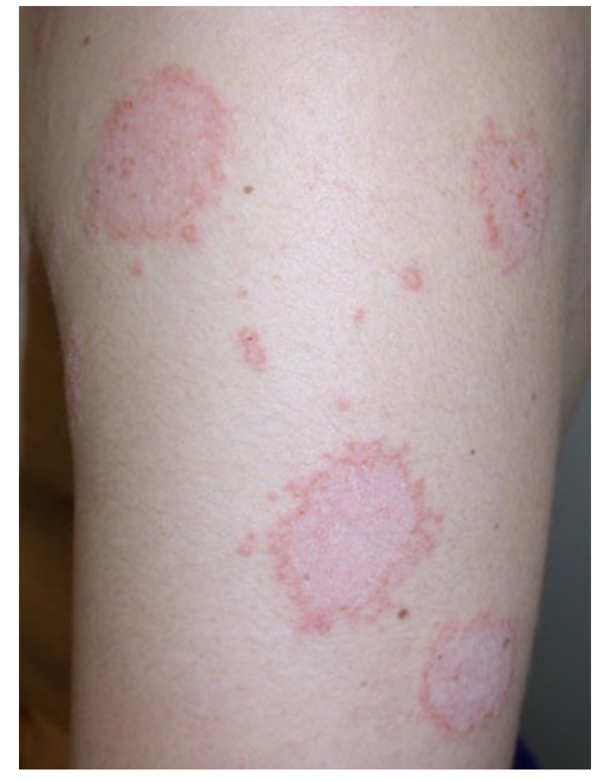
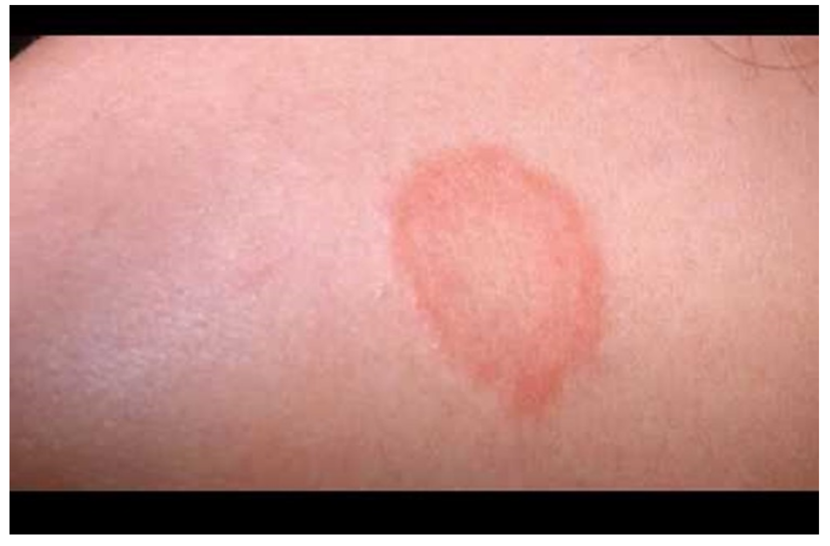
Nummular Eczema







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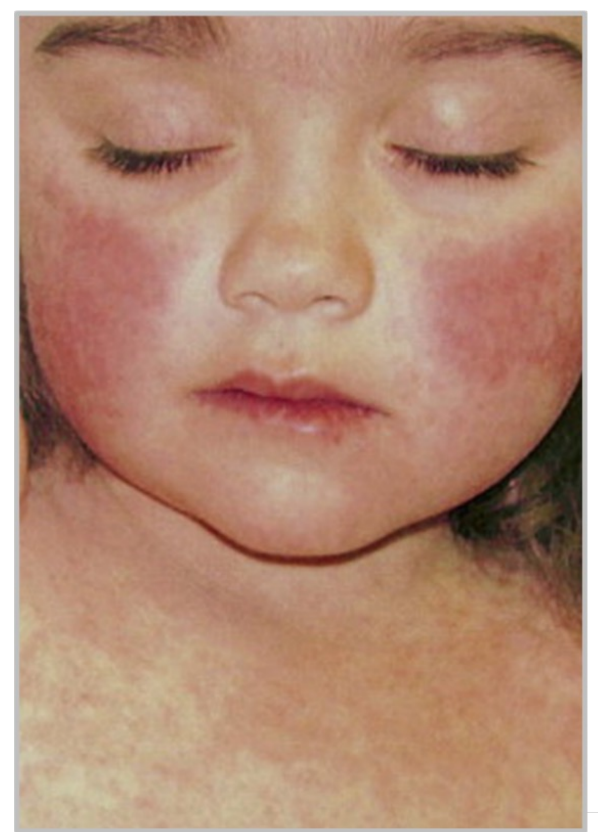
Case 4

4 yo female with 2 days of fever, rhinorrhea, and headache, now with rash. She remains active and playful, drinking well. The race started on her face and has spread throughout. No mucosal lesions. She complains of itchy feet.



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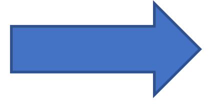
Case 4

You suspect…

A. Roseola



B. Erythema infectiosum

C. Pityriasis Rosea

D. Measles

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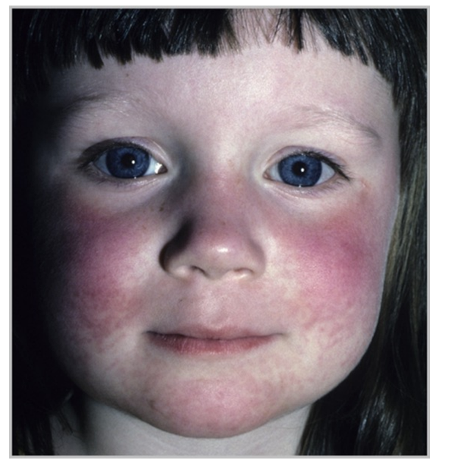
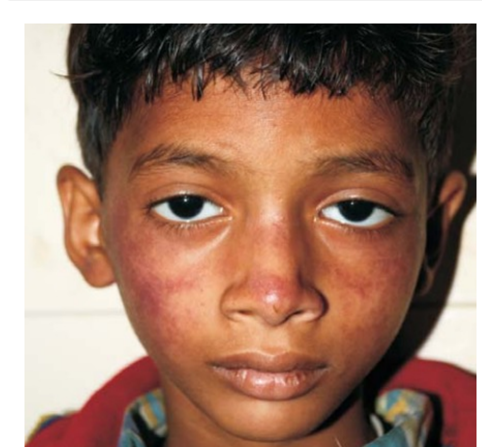
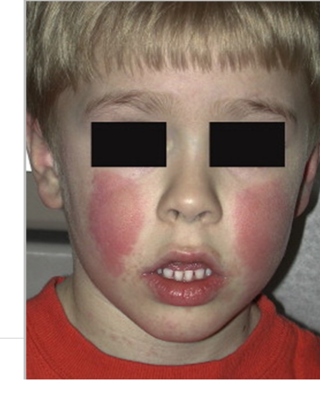
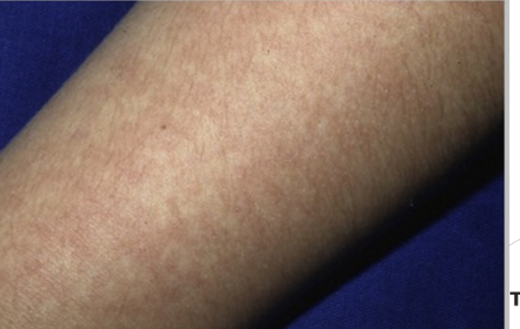
Erythema infectiosum

- Fifth Disease
- Parvovirus B19
- Mild illness in Spring of Summer
- “Slapped cheek” rash then diffuse lacy reticular rash
- May develop arthralgias and arthritis

Management - supportive

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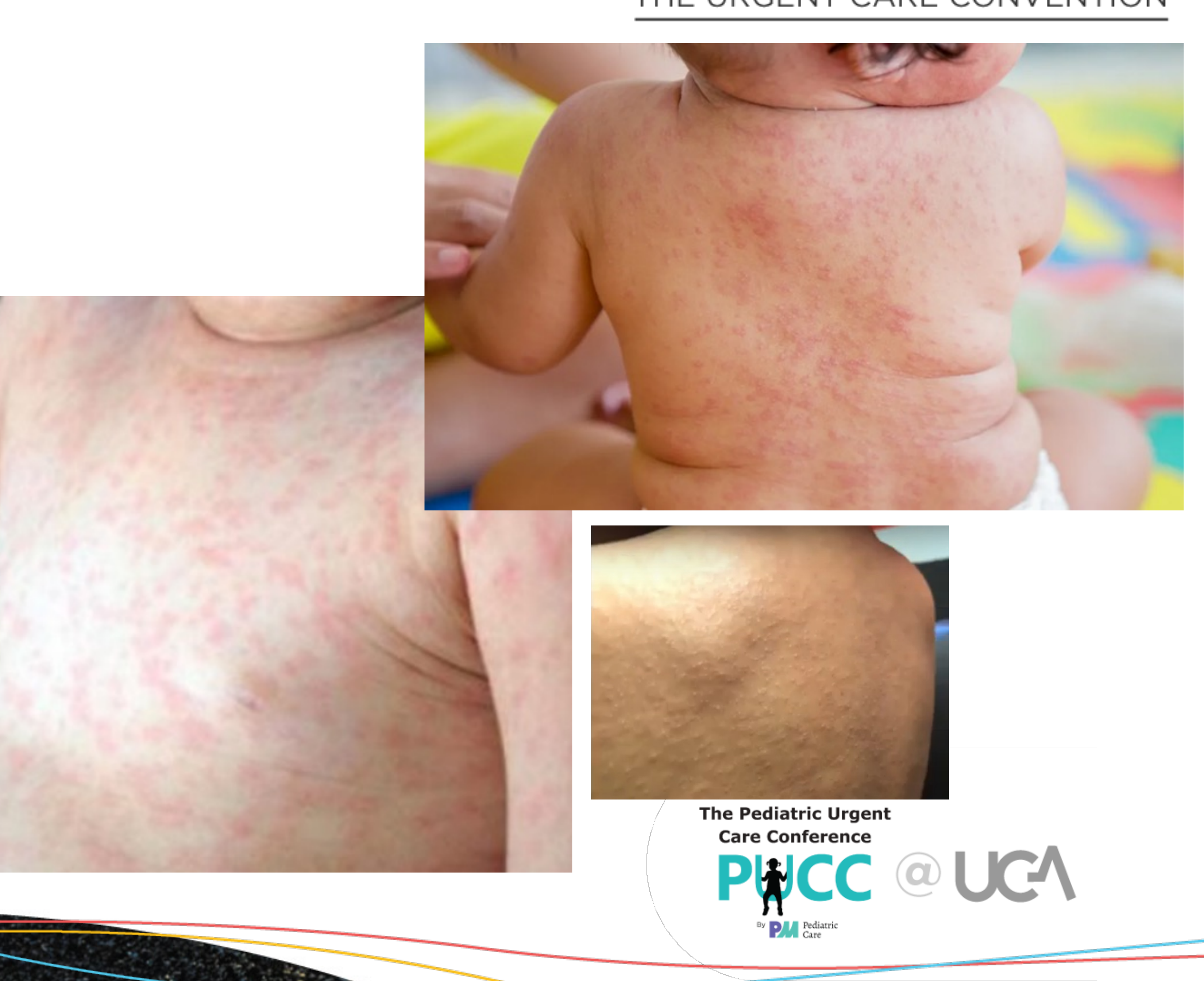
Roseola – Human Herpesvirus 6

- Sixth Disease
- High fever for 3-5 days, then
- Maculopapular Rash begins on trunk
- Well appearing
- Usually < 2 years
- Spring and fall

Management - supportive



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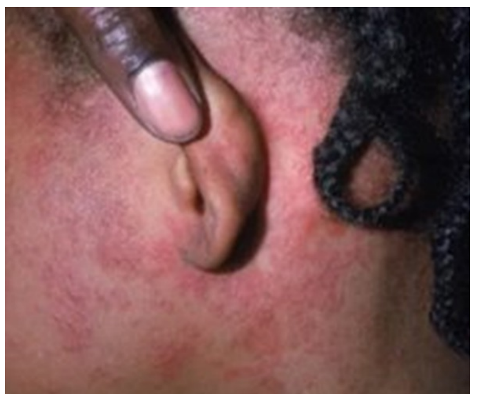
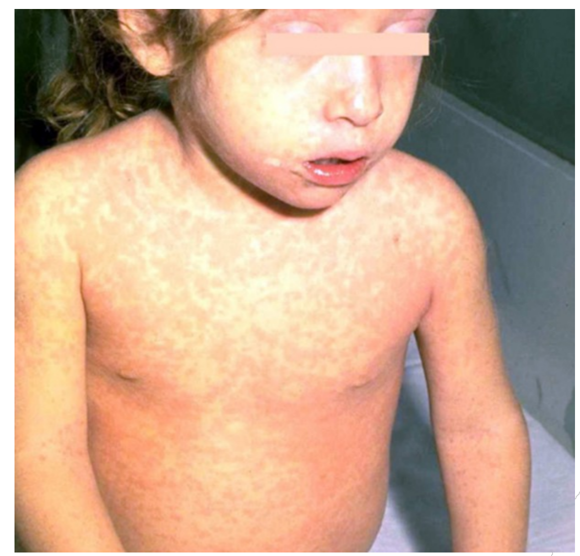
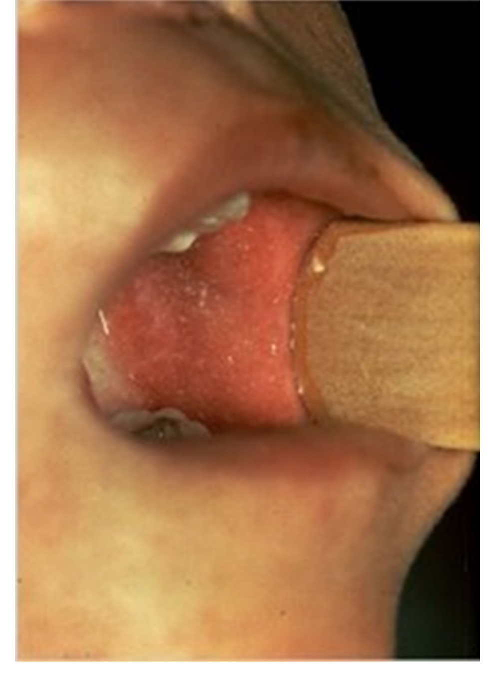
Measles

- First Disease
- Fever, cough, coryza, conjunctivitis (3 C's)
- Koplik spots
- Rash starts on face -> hands/feet
- Complications: Pneumonia, Encephalitis, Bacterial superinfection, Hearing/vision loss, Subacute sclerosing panencephalitis
- Case fatality rate 4-10%

Management - supportive







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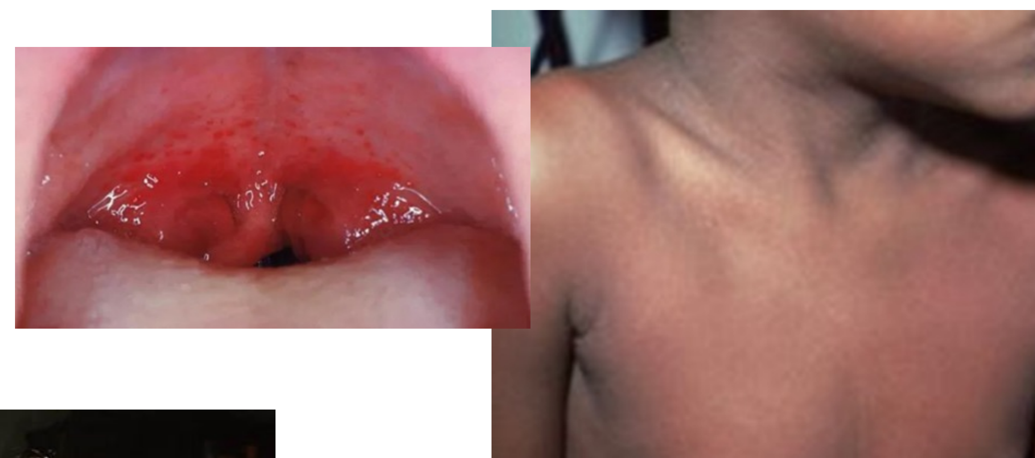
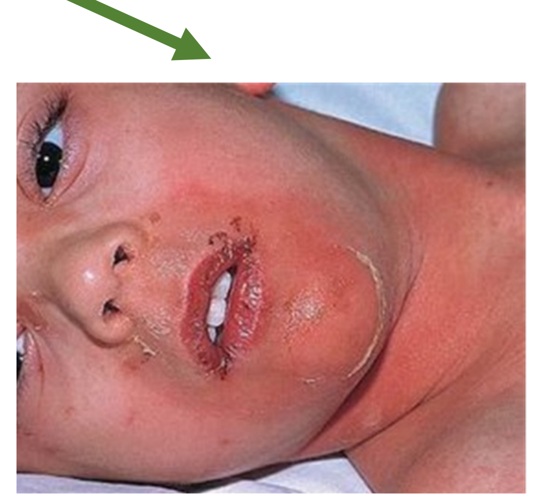
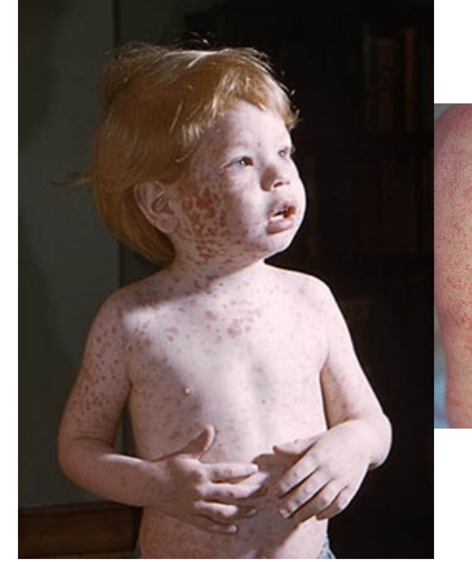
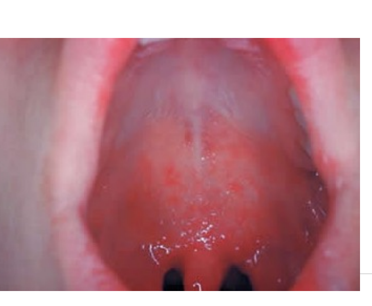
Rash Trivia

- Second Disease = Scarlet fever/scarlatina
- Third Disease = Rubella/German Measles
- Fourth Disease* = Filatov-Dukes Disease?









The Pediatric Urgent Care Conference
PUCC @ UCA

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Reactions & Eruptions

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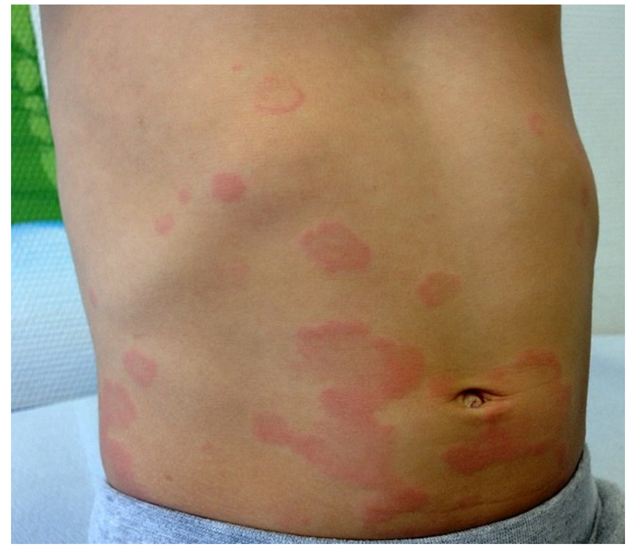
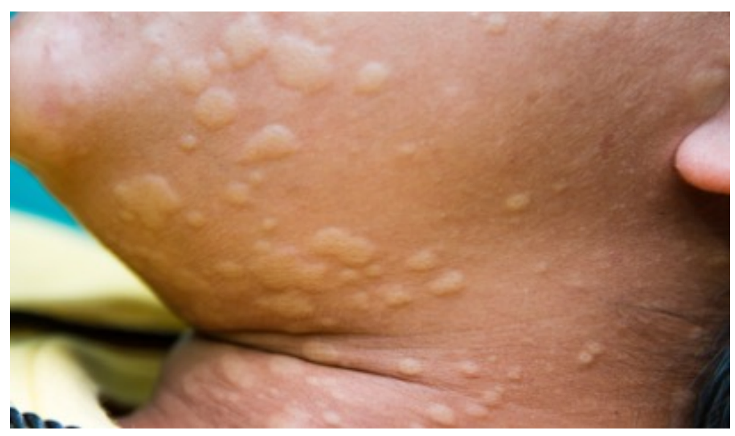
Urticaria

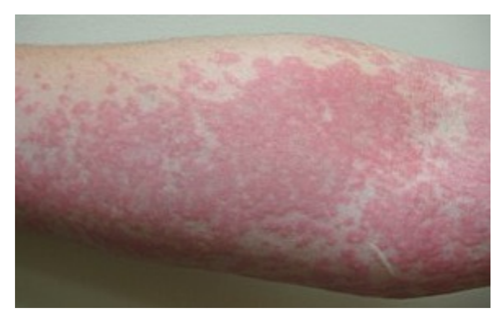
- Common in children
- Triggers:
  - Viral infection
  - Insect bites
  - Medications
  - Foods
  - Unknown
- Typically lasts 1-2 weeks

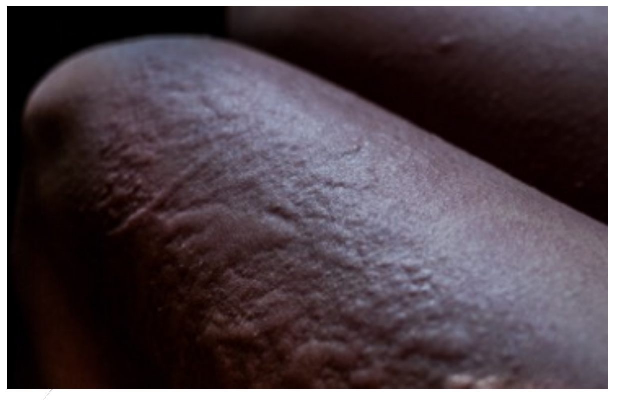
Management - Antihistamines (not steroids)

? Anaphylaxis









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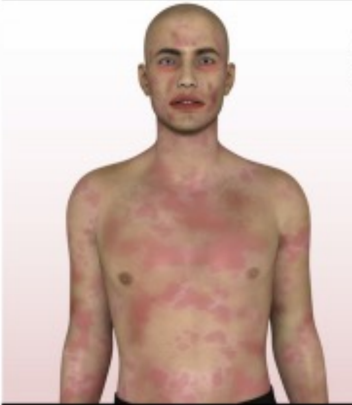
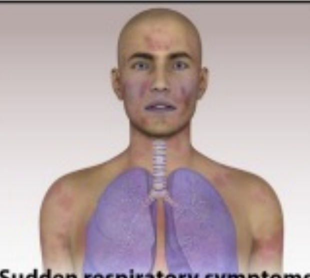
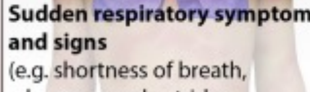
Anaphylaxis is highly likely when any one of the following three criteria is fulfilled

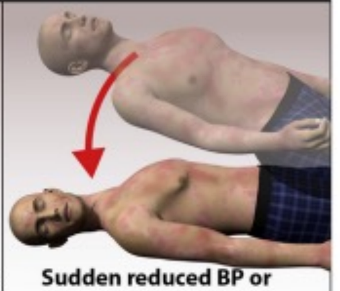
1 Sudden onset of an illness (minutes to several hours), with involvement of the skin, mucosal tissue, or both (e.g. generalized hives, itching or flushing, swollen lips-tongue-uvula)



AND AT LEAST ONE OF THE FOLLOWING:

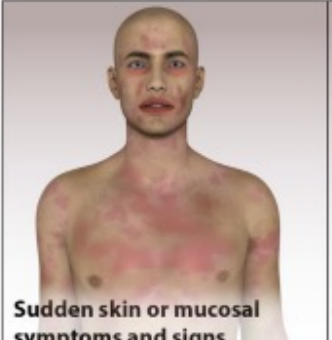



Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)

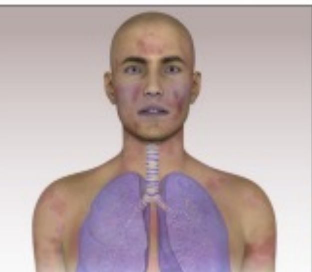


Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)

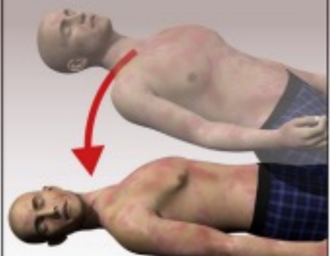
OR 2 Two or more of the following that occur suddenly after exposure to a *likely allergen or other trigger** *for that patient* (minutes to several hours)



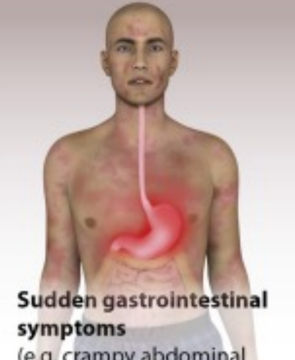
Sudden skin or mucosal symptoms and signs (e.g. generalized hives, itch-flush, swollen lips-tongue-uvula)



Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)



Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)



Sudden gastrointestinal symptoms (e.g. crampy abdominal pain, vomiting)

OR 3 Reduced blood pressure (BP) after exposure to a *known allergen** for that patient* (minutes to several hours)

Infants and children: low systolic BP (age specific) or greater than 30% decrease in systolic BP ***

Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline

Anaphylaxis Criteria - AAAAI 2020 Practice Parameter

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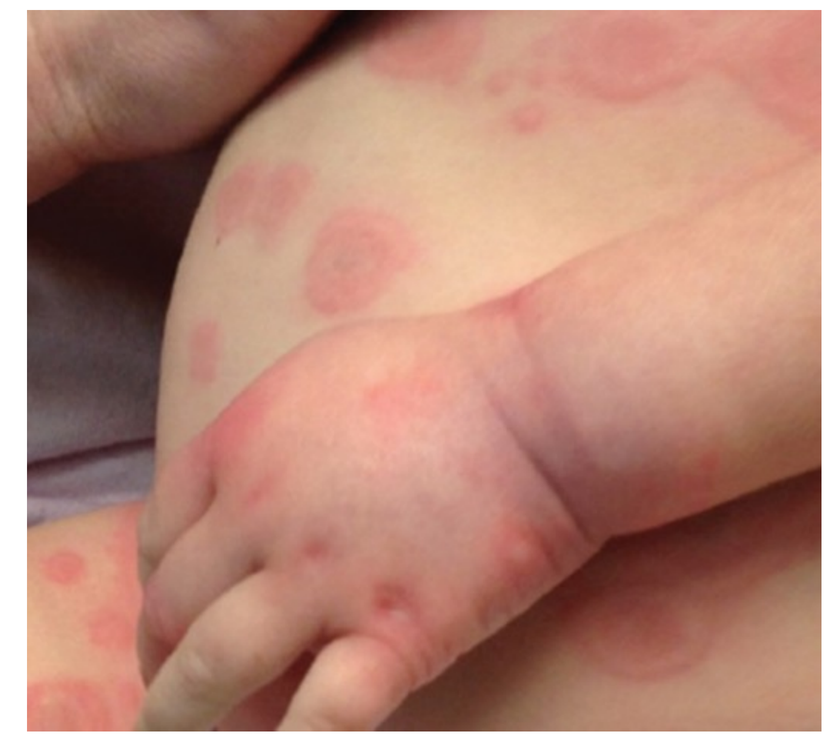
Case 5

15 mo female with rhinorrhea, congestion, and cough starting 10 days ago. Seven days ago she was Dx with AOM and started on Amoxicillin. Now with pruritic rash for 2 days. Began on trunk, spread peripherally. No mucosal lesions or ulcers.



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Case 5

Seeing her swollen hands and feet, you realize this is..

A. Anaphylaxis

B. Erythema multiforme

C. Urticaria vasculitis

D. Urticaria multiforme

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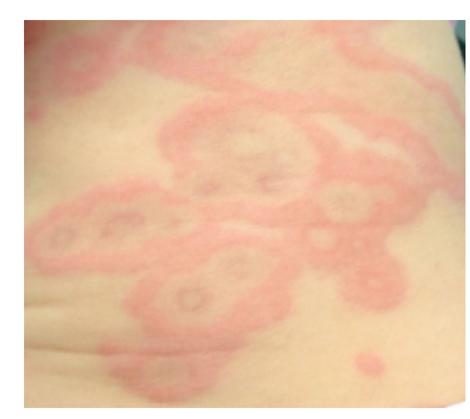
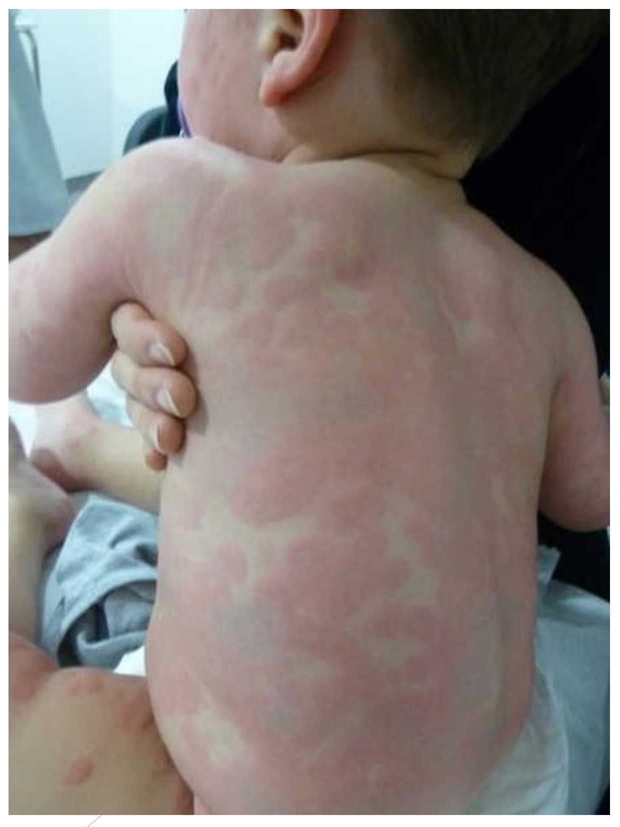
Urticaria multiforme

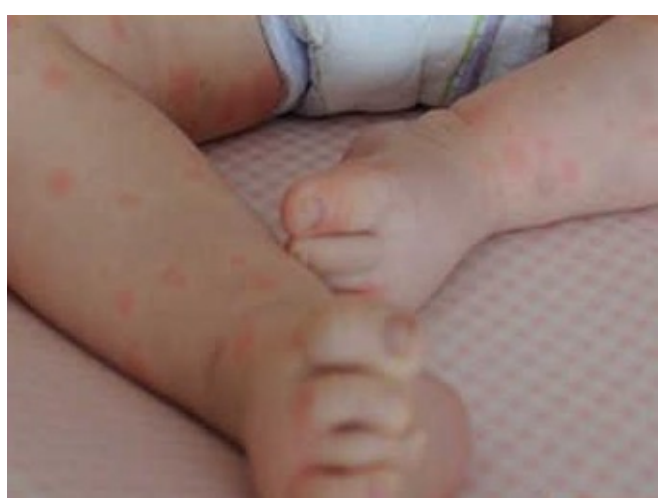
DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

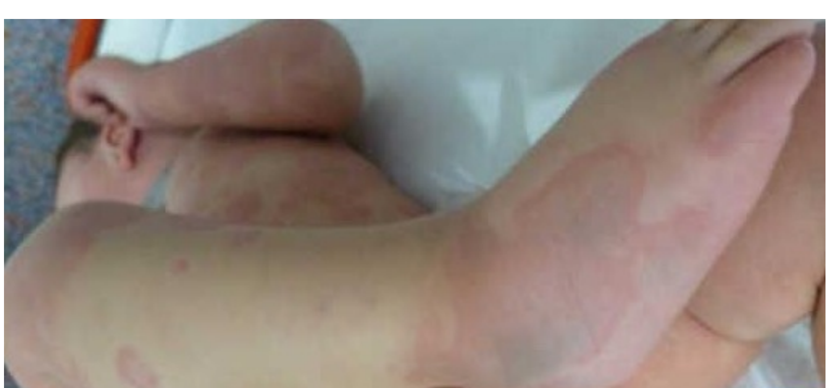
- Benign cutaneous hyper-sensitivity reaction
- Viral or medication triggers

Management - Antihistamines









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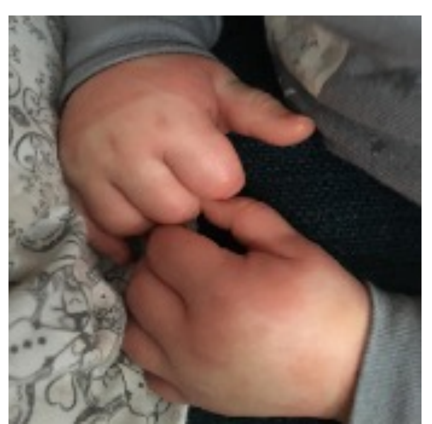
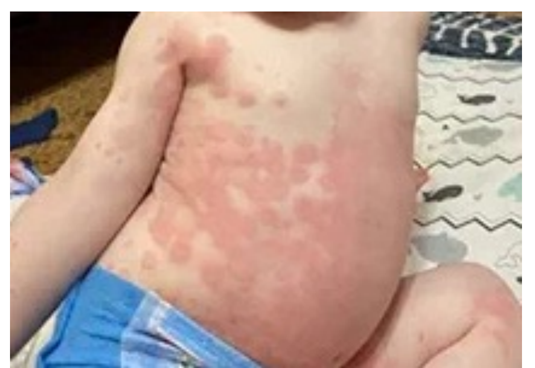
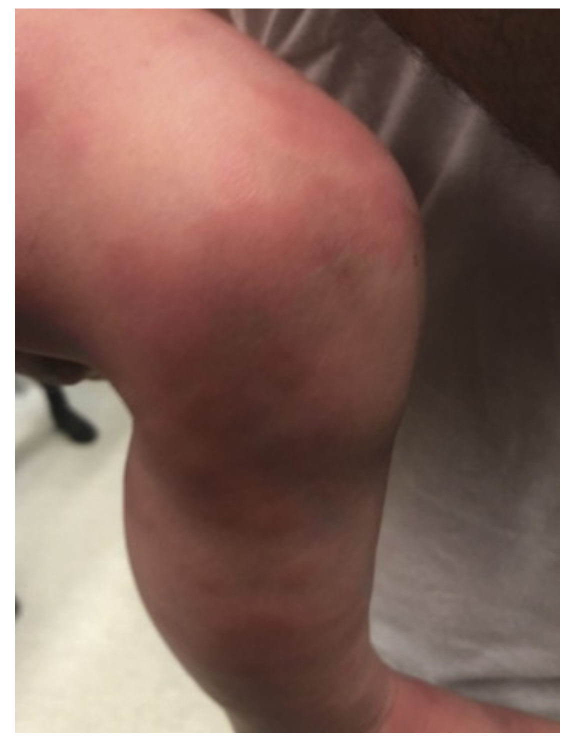
Serum-sickness-like Reaction

- Sudden onset of rash and joint inflammation +/- fever
- No mucous membrane involvement
- Mainly triggered by medications

Management - Antihistamines and NSAIDs







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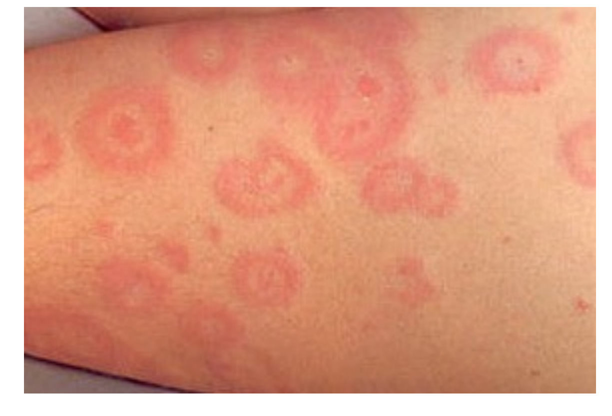
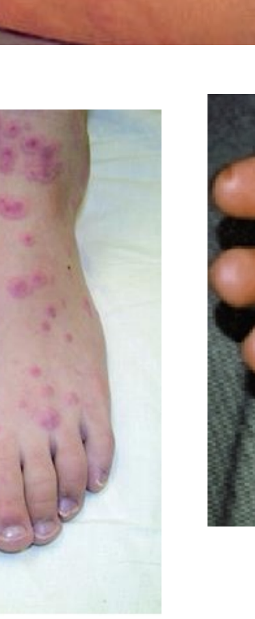
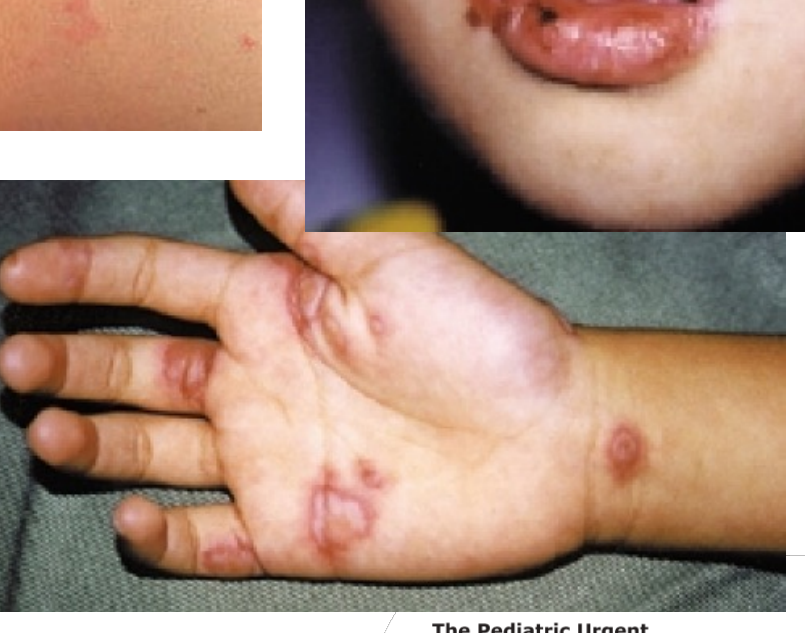
Erythema multiforme

- Type IV hypersensitivity reaction
- Note purpura in center of lesions
- Response to an inciting infectious or pharmacologic antigen
- Minor vs Major

Management - Supportive







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	Urticaria Multiforme	**Erythema Multiforme**	**Serum-sickness-like Reaction**
Age	Infants and small children	All: 50% less than 20 years	All
Lesions	Annular wheals with ecchymotic centers, “target” lesions, middle ring of pallor, center may blister	Classic “target” lesion, center purpuric or dusky, middle ring of pallor	Urticarial, polycyclic wheals with central clearing that may be ecchymotic-appearing
Location	Trunk, extremities, face	Dorsum of extremities, esp. over joints, palms, soles, genitals	Face, trunk, extremities, lateral borders of hands and feet
Lesion Duration	< 24 hours	Days to weeks	Days to weeks
Total rash duration	2-12 days	2-3 weeks	1-6 weeks
Mucous membranes	Oral edema, no erosions or blisters	Erosions, occasional ulcers	Oral edema, no erosions or blisters
Facial/Acral edema	Common	Rare	Less common
Fever	Occasional low grade	Occasional low grade	Moderate to High
Arthralgias	No	No	Yes
Triggers	Viral illness, antibiotics, immunizations	Herpes simplex, other viral illness	Antibiotics
Treatment	Antihistamines	+/- Oral steroids, +/- valacyclovir	Antihistamines, Oral steroids if severe arthralgias/pain

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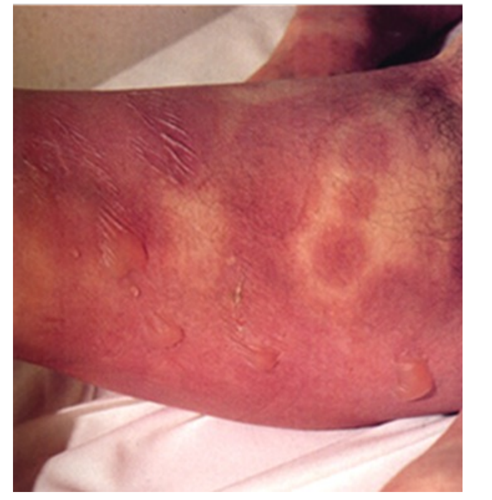
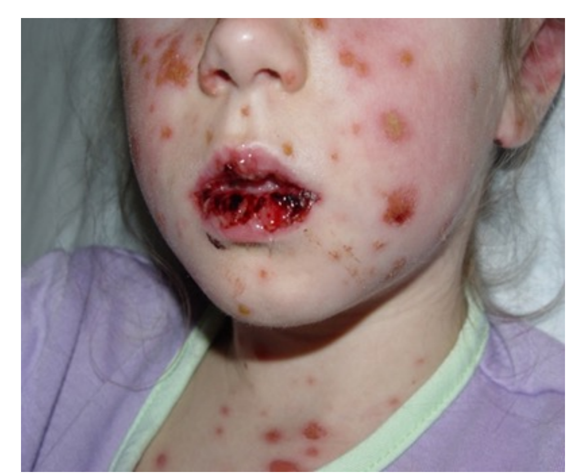
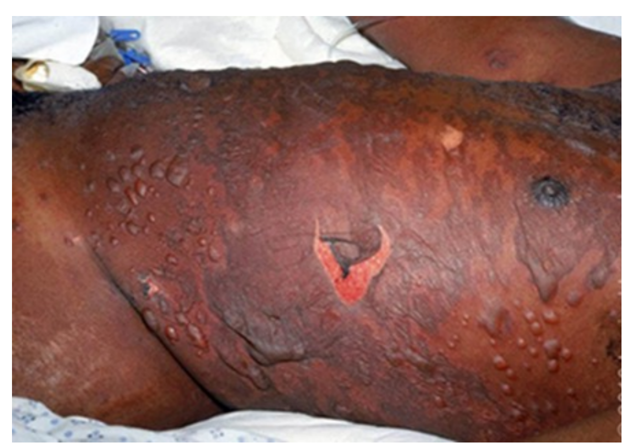
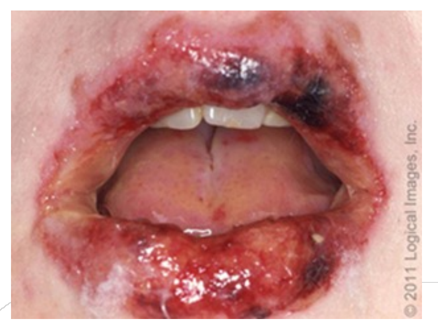
Stevens-Johnson Syndrome - Toxic Epidermal Necrolysis

DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

- Erythema multiforme major
- Severe idiosyncratic reactions
- Fever and mucocutaneous lesions
- Mucosal erosions and ulcers
- Progression to epidermal necrosis and sloughing

Management - Transfer to Hospital

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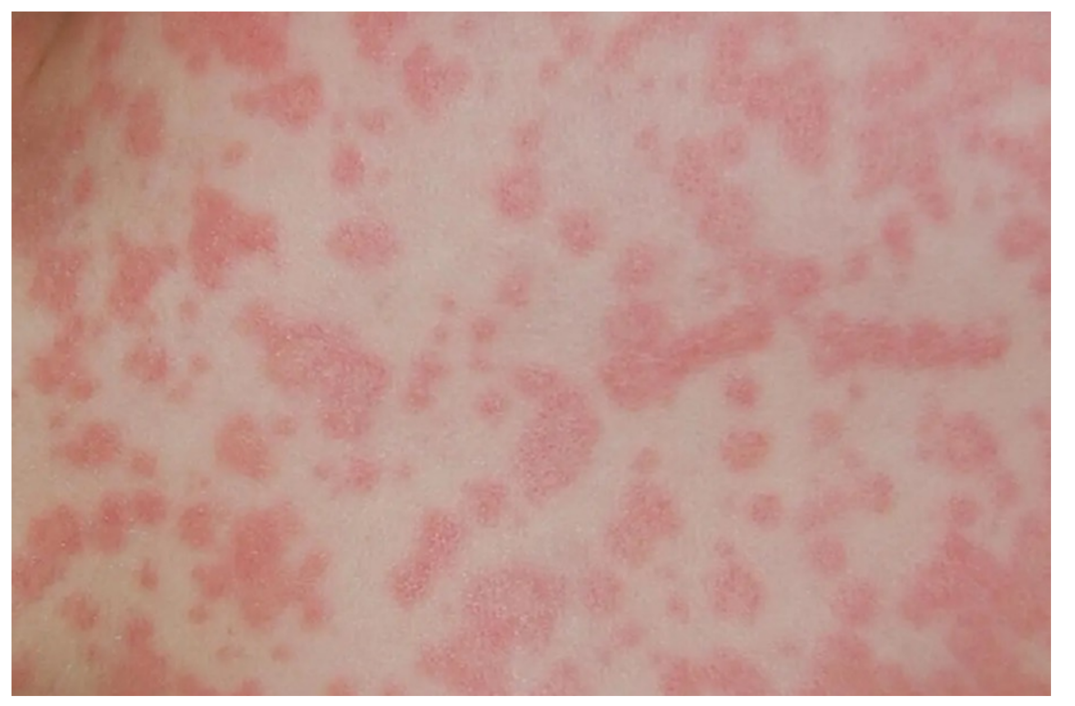
Case 5 – Alternate ending

15 mo female with rhinorrhea, congestion, and cough starting 10 days ago. Seven days ago she was Dx with AOM and started on Amoxicillin. Now with rash for 2 days. Began on trunk, spread peripherally. No mucosal lesions or ulcers.



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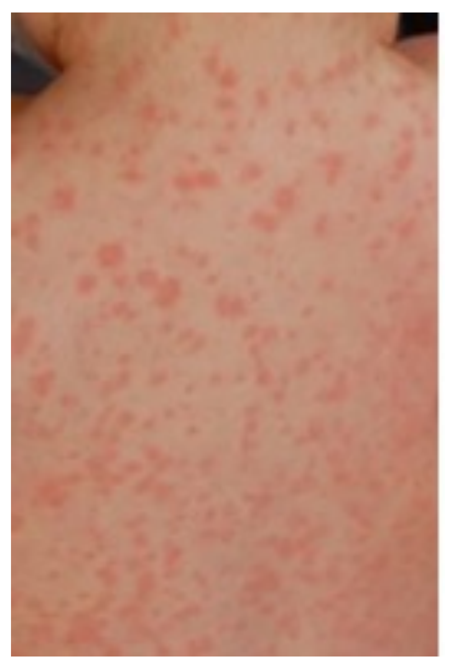
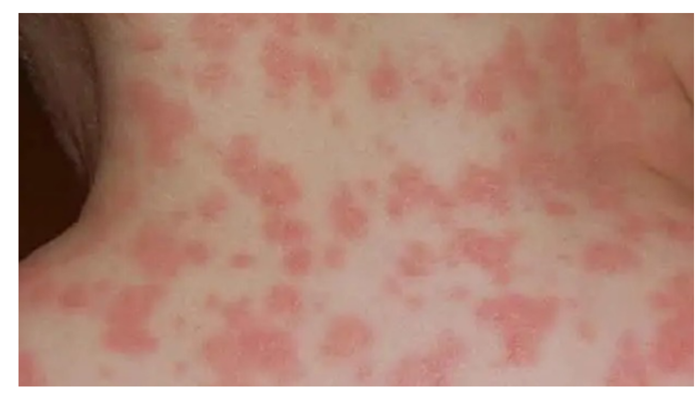
Drug rash

DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

- Amoxicillin rash – 10% of patients
- 3-10 days after starting a medication
- Macular or Maculopapular rash
- Hard to differentiate drug vs viral trigger
- Lasts 2-6 days
- Only mildly pruritic





Management – supportive, antihistamines if needed

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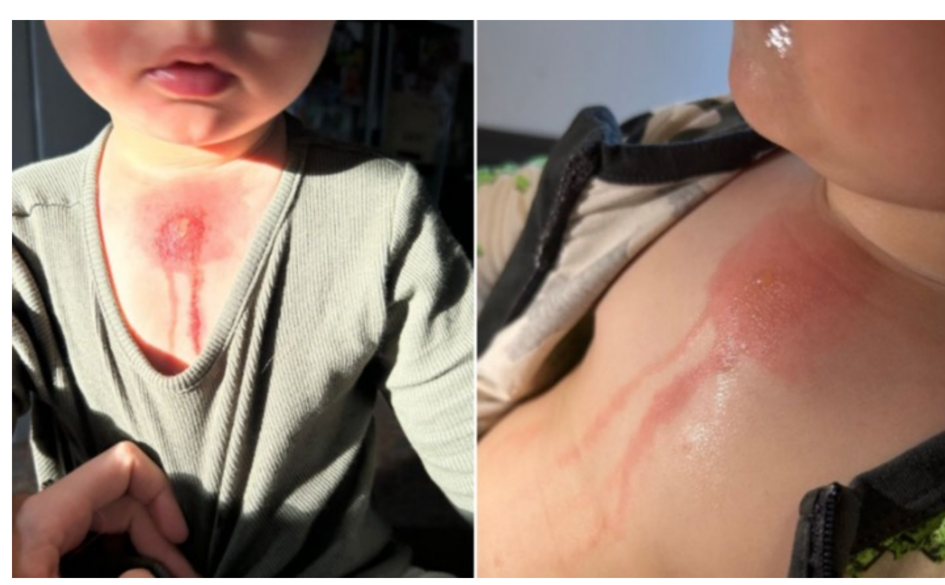
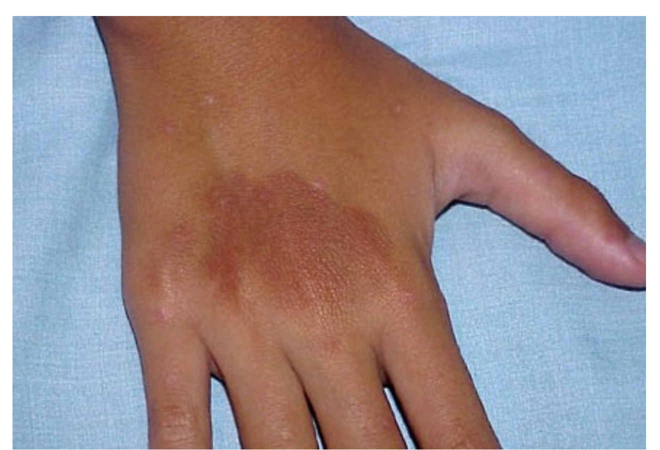
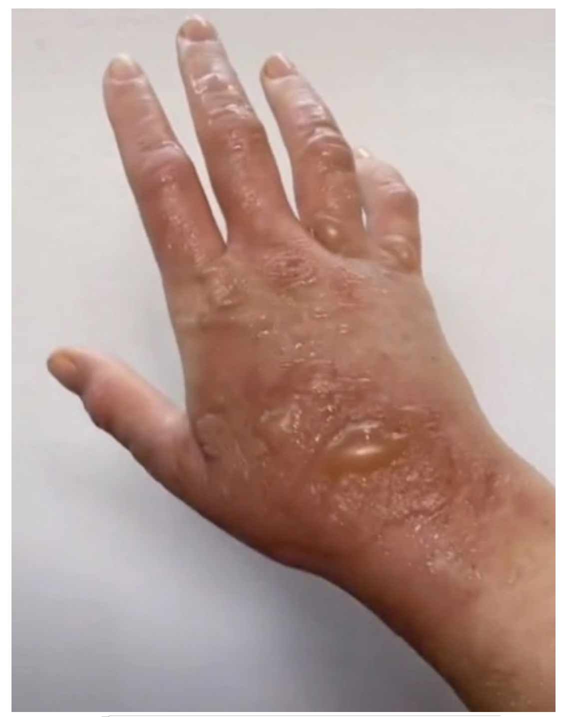
Lastly, while enjoying the warm weather in Vegas, be careful about sun protection. And limes are delicious, but reactive.



Phytophotodermatitis





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How you can drive change:

- Develop your basic and focused history for rashes
- Use this history and a careful exam to differentiate common viral and allergic rashes
- Sun + limes = burn

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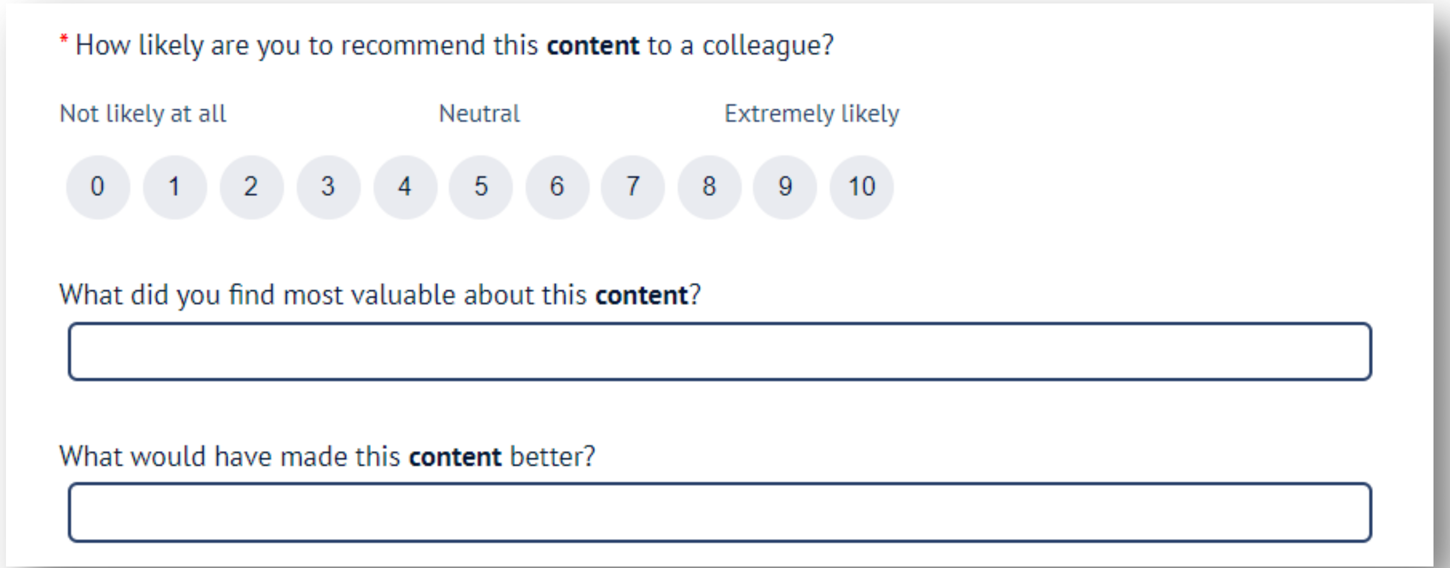
Session Evaluation

- Your feedback is valuable, take a moment to complete the survey for this session.
- To claim CME, you must complete a separate survey available after the convention.



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