

Pearls and Pitfalls of Pediatric Rashes

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Disclosure

I have no financial interests or relationships to disclose.

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Conquering a Rash

History
Vitals
Differential

Visualdx.com

3

Conquering a Rash

History
Vitals
Differential

**rashes in darker pigmented skin are under-recognized*

Visualdx.com

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2012 VisualDx



7

Eczema



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Eczema in Children

Birth-2 years FACE and scalp
EXTENSOR surfaces

Pruritic, red, weeping or scaly and crusted lesions

2yrs-puberty Neck
Flexural surfaces
Lichenified plaques

Localized with lichenification

Uptodate.com

9

Eczema Treatment

Eliminate Exacerbating Factors

HYDRATE Skin (thick creams/ointments)

Control Skin **Inflammation**

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What Is the Treatment?

- A. Acyclovir
- B. Mupirocin
- C. Frequent Bathing
- D. Silvadene
- E. Tar Baths



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Eczema Herpeticum



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Eczema Molluscatum



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Eczema Cocksackium



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Viral Exanthem

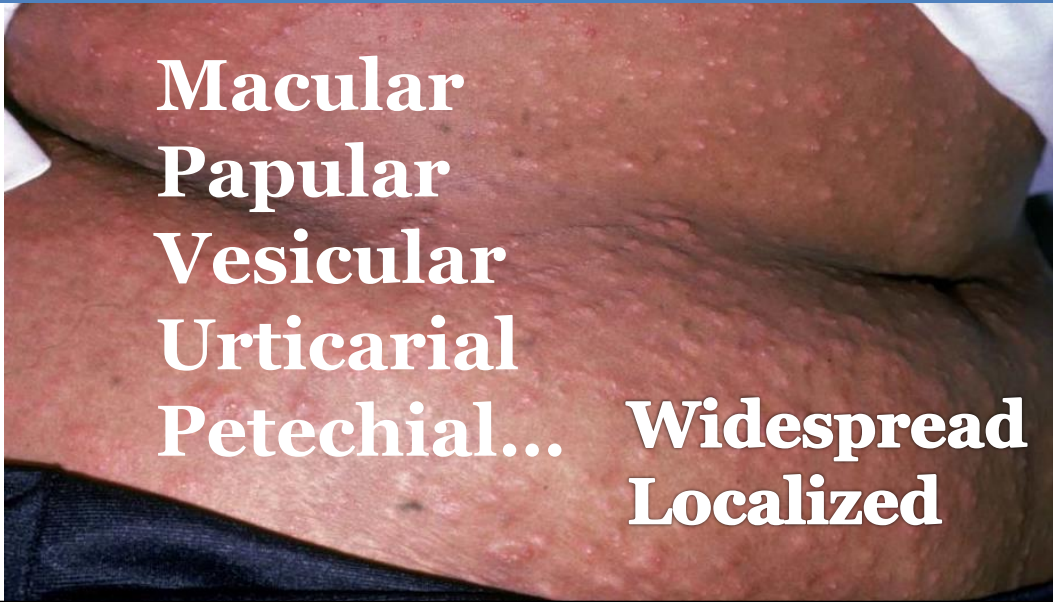


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Viral Exanthems:

Macular
Papular
Vesicular
Urticarial
Petechial...

Widespread
Localized

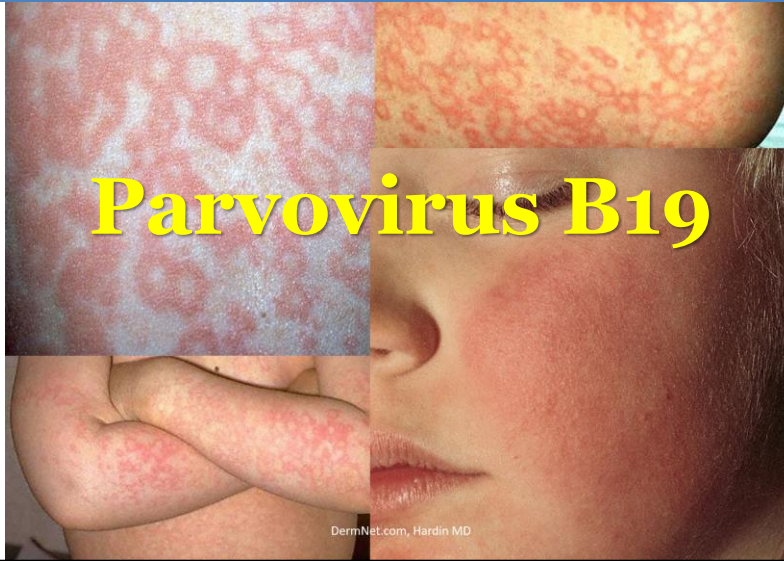


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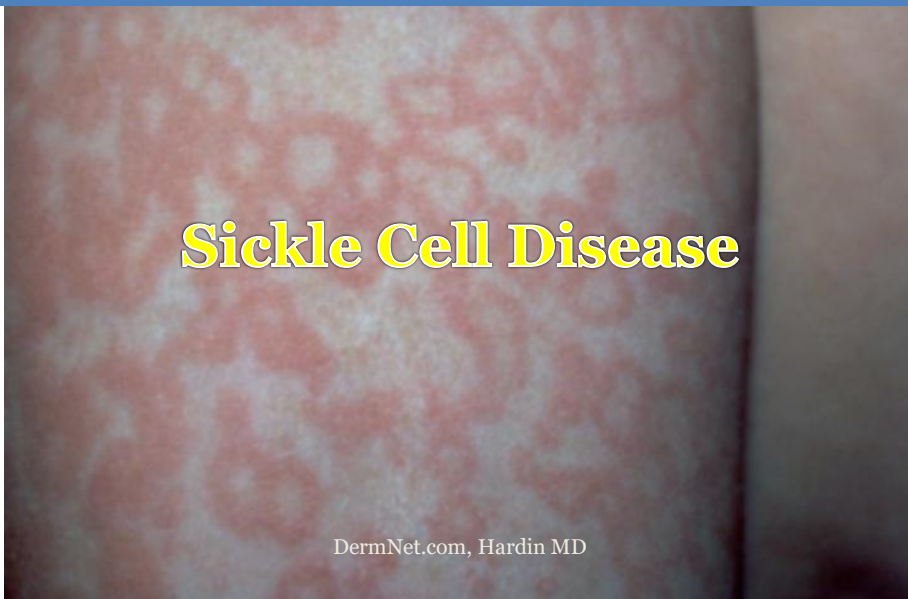
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Slapped Cheek Fifth Disease



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Pregnancy



22



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Roseola Infantum

HHV-6



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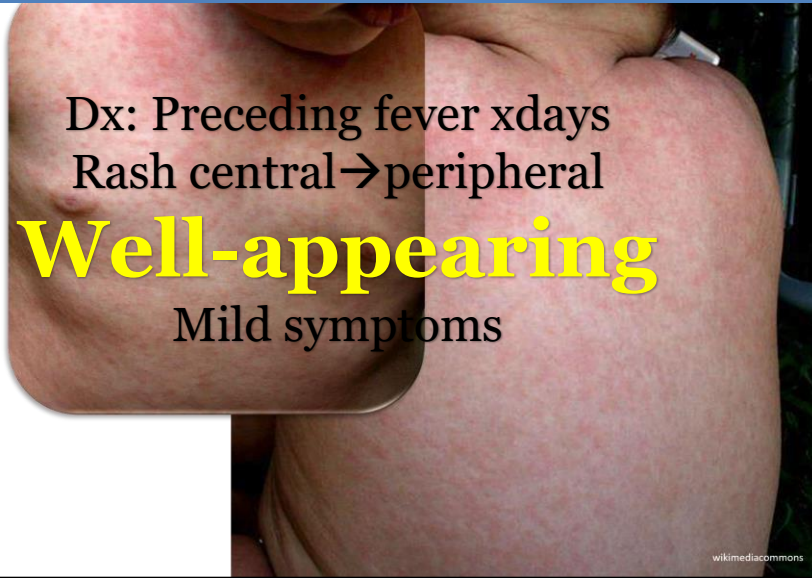
Roseola Infantum

HHV-6

Dx: Preceding fever xdays
Rash central → peripheral

Well-appearing

Mild symptoms



wikimediacommons

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Head/Neck→

Trunk/Extremities



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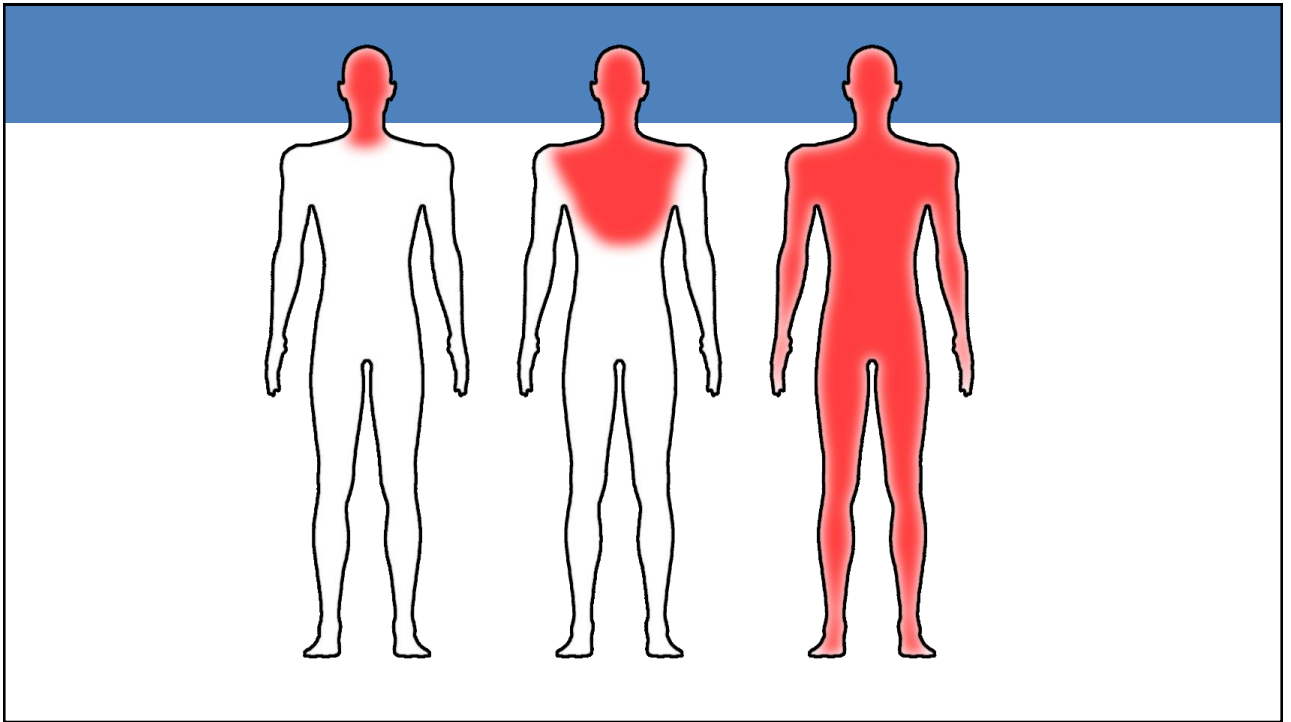
Head/Neck→

Trunk/Extremities

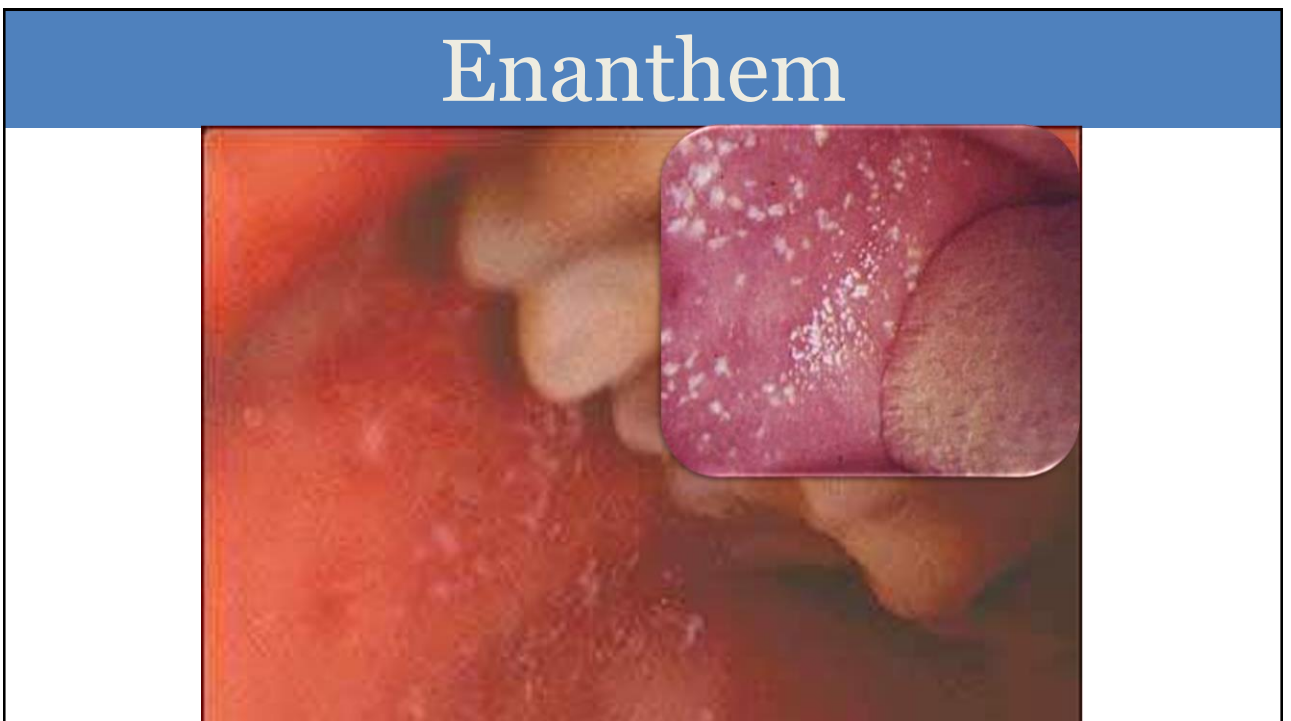
Egg dripping down



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30



31



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Loren Yamamoto, MD

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Loren Yamamoto, MD

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Loren Yamamoto, MD

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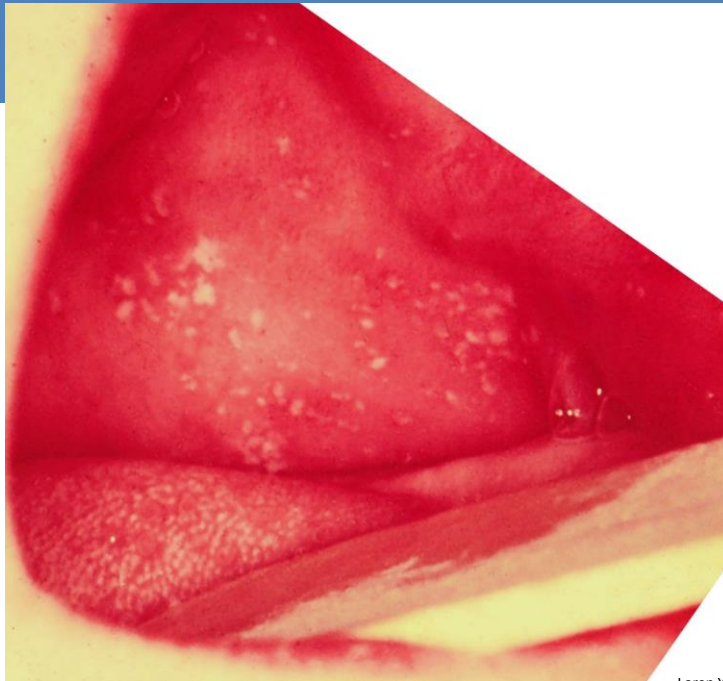
Loren Yamamoto, MD

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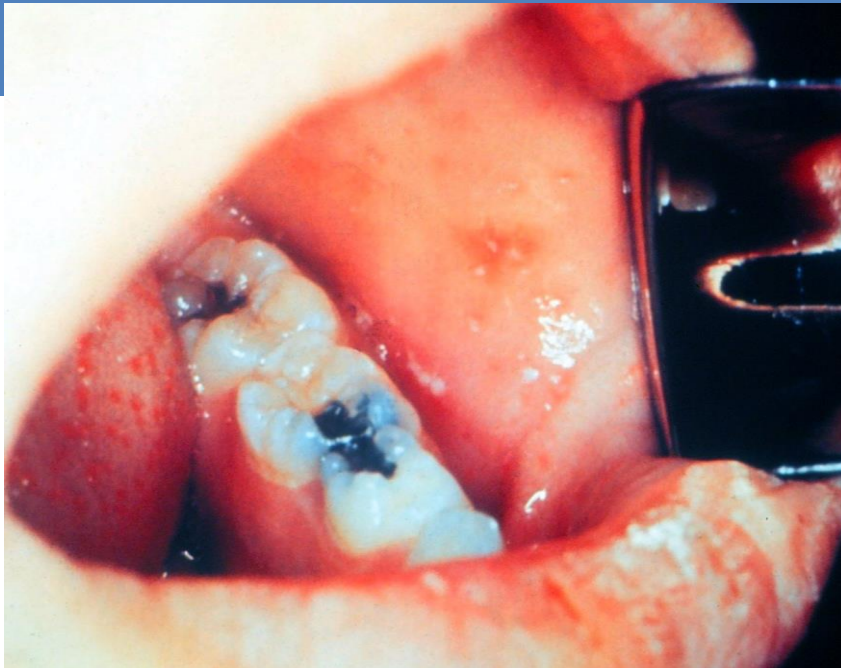
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Loren Yamamoto, MD

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Loren Yamamoto, MD

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Appear **48 hours prior to rash**
(and only lasts 12-72 hours)

Koplik Spots:

- Buccal mucosa
- Lips
- Gums
- Conjunctiva
- Vaginal mucosa

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Measles

Rash **head→trunk**

Conjunctivitis

Koplik spots

Kawasaki mimic

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Measles

One of the **most contagious** infectious diseases

Infectious 5 days before symptoms

Vaccine at 1 year (can receive at 6 months, give with airport travel)

7% of the population vaccine non-responders

Can obtain PCR from nasopharyngeal swab or urine *(after rash)*

Report to public health

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Measles

Vaccine at **12 months**

Can be given as early as **6 months**

Booster at **4-5 years**

Can be given 1 month after first shot

1 in 1000 die

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Measles

Complications: immune suppression--(x yrs)

Bacterial superinfections, encephalitis, ADEM, subacute sclerotizing panencephalitis (7-10 years later)

Leading preventable cause of **blindness** worldwide (keratitis)

Vitamin A treatment decreases morbidity and mortality

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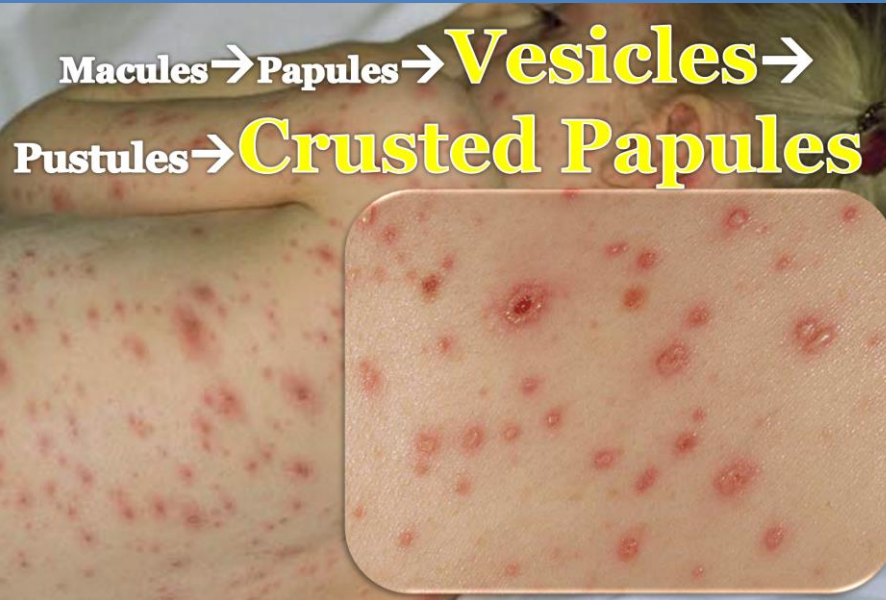


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Different Stages of Development



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Photo courtesy Michaela Cribb

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Photo courtesy Michaela Cribb

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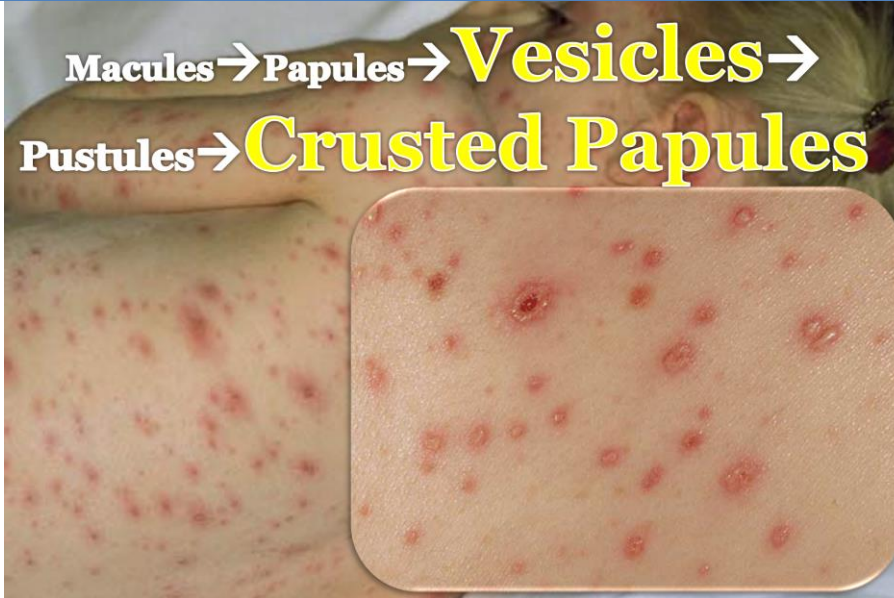
Varicella (Chickenpox)

Photo courtesy Michaela Cribb

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Different Stages of Development

Macules → Papules → **Vesicles** →
Pustules → **Crusted Papules**



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Bullous Varicella



Photo courtesy Dr. Stanley Inkelis, MD

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Oral Lesions in **Chickenpox**



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Varicella



54

Varicella



Can **Recur!**
Even in Vaccinated

55

Varicella



Typically 200-600 lesions
Vaccinated <50 lesions

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Varicella Zoster



59

Varicella Zoster



60



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Varicella Zoster

Treatment:
Acyclovir/valacyclovir

<https://www.medicalnewstoday.com>

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63



64

Gingivostomatitis

2/2 Herpes



65

Herpetic Whitlow



66



67

Herpangina



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Hand Foot Mouth



69

Hand Foot Mouth



70

Coxsackie Enterovirus A6

Hand Foot and Mouth

“on steroids”

2008 Asia and Europe

2011 USA

71



Aapplications.org

72



Aapplications.org

73

Coxsackie Enterovirus A6



Feder HM Jr, Bennett N, Modlin JF.
Atypical hand, foot, and mouth disease:
A vesiculobullous eruption caused by
Coxsackie virus A6. *Lancet Infect Dis.*
Jan 2014;14(1):83-6

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75



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Photo courtesy of Dr. Richard Bracken

77



Photo courtesy of Dr. Richard Bracken

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Photo courtesy of Dr. Nicholas Greco

79



Photos courtesy of Dr. Nicholas Greco

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Photos courtesy of Dr. Nicholas Greco

81

Onychomadesis “Beau’s Lines”



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Diaper Dermatitis

83

Diaper Rash



<http://www.mayoclinic.com/health/medical>

84



85

Diaper Rash Rx

Minimize “wet time”

Bathe regularly

Give baby “air time” after bath

Barrier cream (zinc oxide, petrolatum jelly, aquaphor)

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Candidal Diaper Rash



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Candidal Diaper Rash

Topical nystatin,
miconazole, clotrimazole



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webmd.com



DermNet.com, Hardin MD

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Tinea Corporis



91

Tinea Corporis



92



93

Tinea Tx:



© 2001 VisualDx

**Topical Antifungals
BID x1-6 wks**

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Tinea Capitis → ORAL Antifungals



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medscape.com

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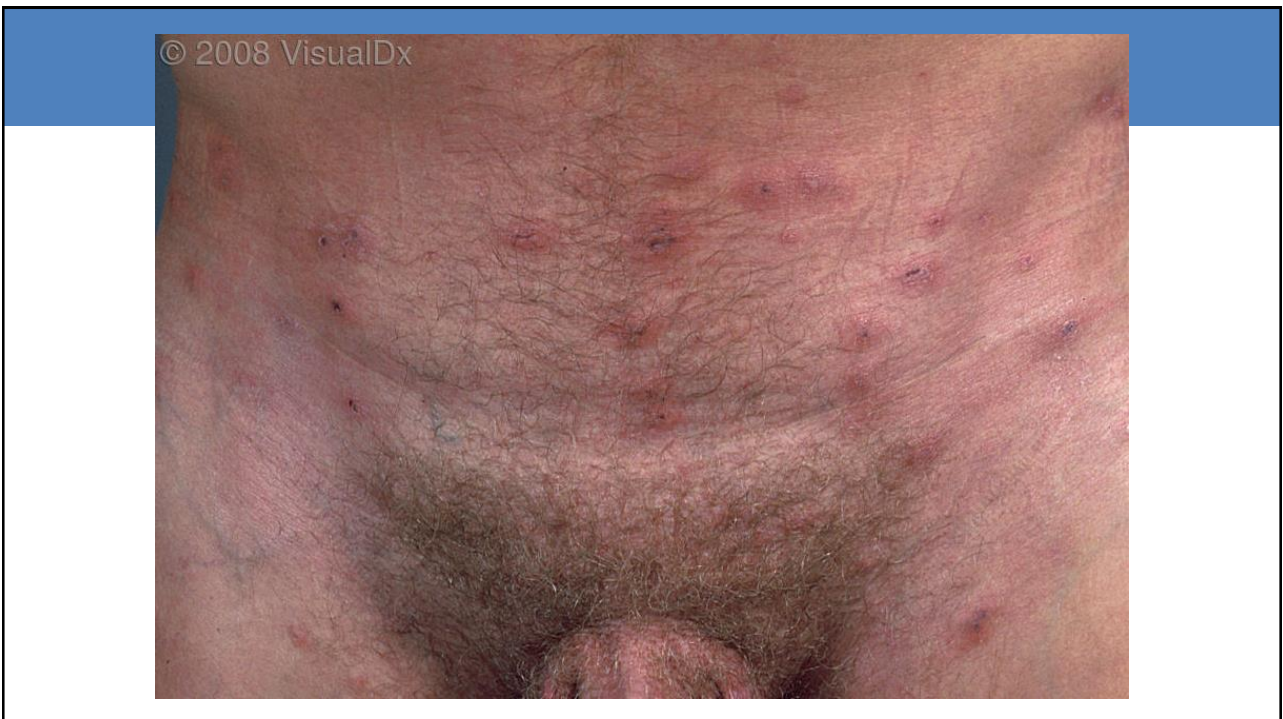


DermNet.com, Hardin MD

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Scabies



DermNet.com, Hardin MD

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Scabies

Consider in
ANY
Pruritic Rash

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Scabies

Pruritis (worse at night)

Symptoms **3-6 weeks after infections** (unless previously infested, then 1-3 days)

Delayed hypersensitivity to mite, feces, and eggs

103

Scabies

Pruritis (worse at night)

Symptoms **3-6 weeks after infections** (unless previously infested, then 1-3 days)

Delayed hypersensitivity to mite, feces, and eggs

Prolonged skin-skin contact

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Scabies Treatment



Permethrin
Ivermectin

DermNet.com, Hardin MD

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Scabies Home Treatment

Transmission → prolonged skin to skin contact
mites survive off host 24-36 hours

Treat close contacts simultaneously

Wash clothing/bedding used in prior 3 days in **hot water**

*Quarantine items (pillows, stuffies) for **72 hours***

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Scabies Treatment

Topical **Permethrin 5%**: massage from neck to soles (under nails)

Include head in young children

30 g for

Reapp

Safe for use in >

Oral ivermectin 200

Second treatm

Ideal for nursing



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Scabies Treatment

Topical **Permethrin 5%**: massage from neck to soles (under nails)

Include head in young children (spare eyes/mouth)

30 g for one adult one time

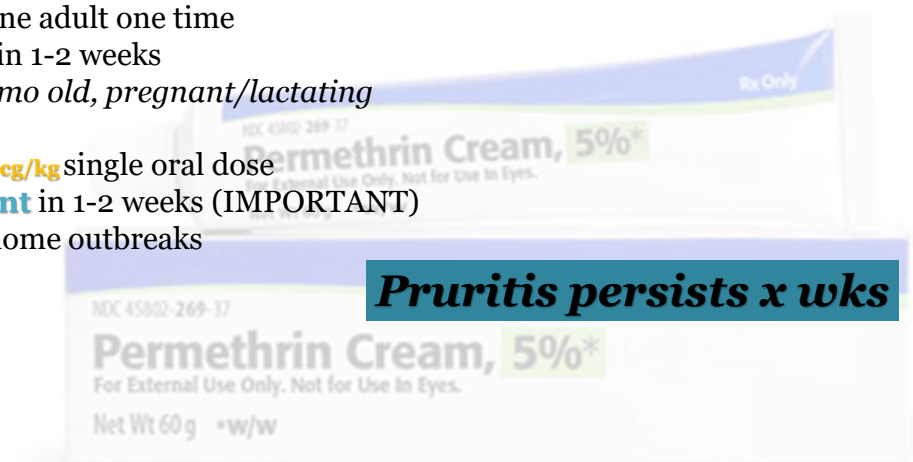
Reapply in 1-2 weeks

Safe for use in >2 mo old, pregnant/lactating

Oral ivermectin 200 mcg/kg single oral dose

Second treatment in 1-2 weeks (IMPORTANT)

Ideal for nursing home outbreaks



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110



Photo courtesy Dr. Dina Seif Radwan

111



Photo courtesy Dr. Dina Seif Radwan

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Photo courtesy Dr. Dina Seif Radwan

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Photo courtesy Dr. Dina Seif Radwan

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Photo courtesy Dr. Dina Seif Radwan

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Photo courtesy Dr. Dina Seif Radwan

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Photo courtesy Dr. Dina Seif Radwan

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Impetigo



Face/
Hands

Papules
Pustules
Crust

120

Impetigo



Staph/
Strep

Topical
Mupirocin

121



medscape.com

122



123



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Staphylococcal Scalded Skin Syndrome



medscape.com

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Treatment:



medscape.com

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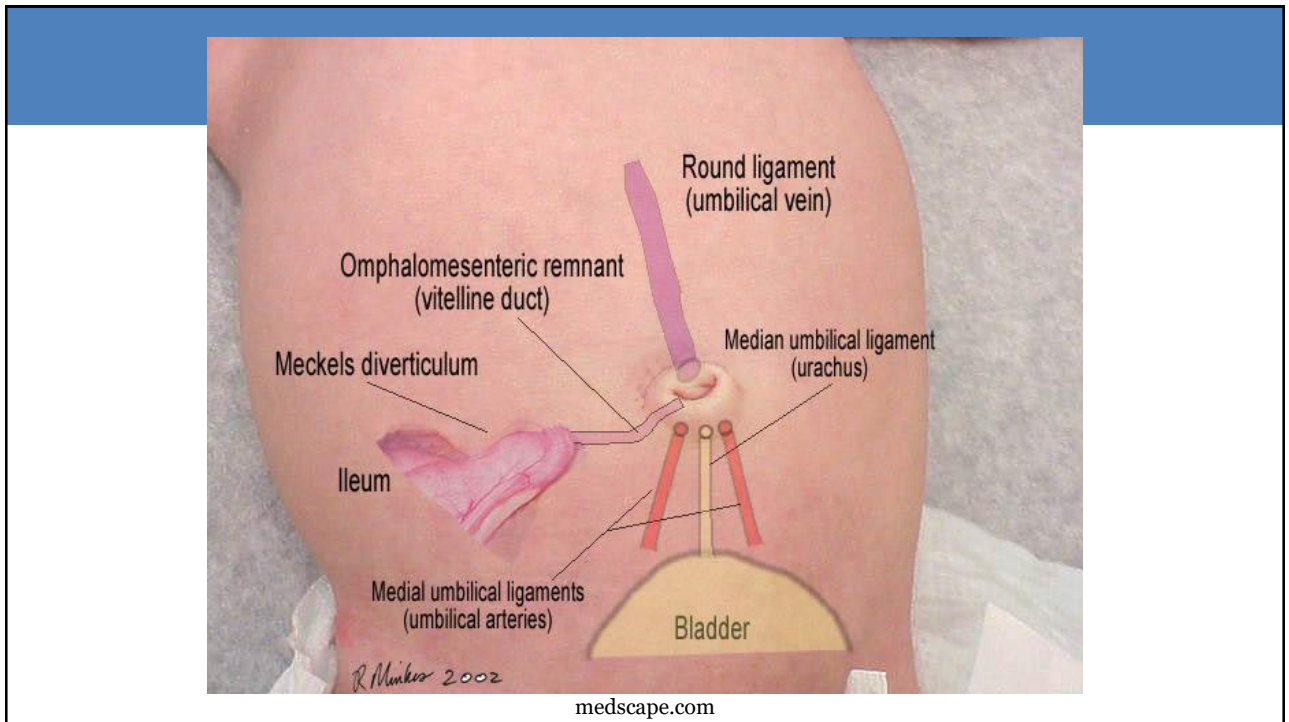
Adhb.govt.nz/newborn

127



Dermatlas.med

128



129



130



<http://osuemed.wordpress.com>

131



<http://osuemed.wordpress.com>

132

Index of Suspicion



<http://osuemed.wordpress.com>

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LRINEC Score

↑CRP

↓Na

↑WBC

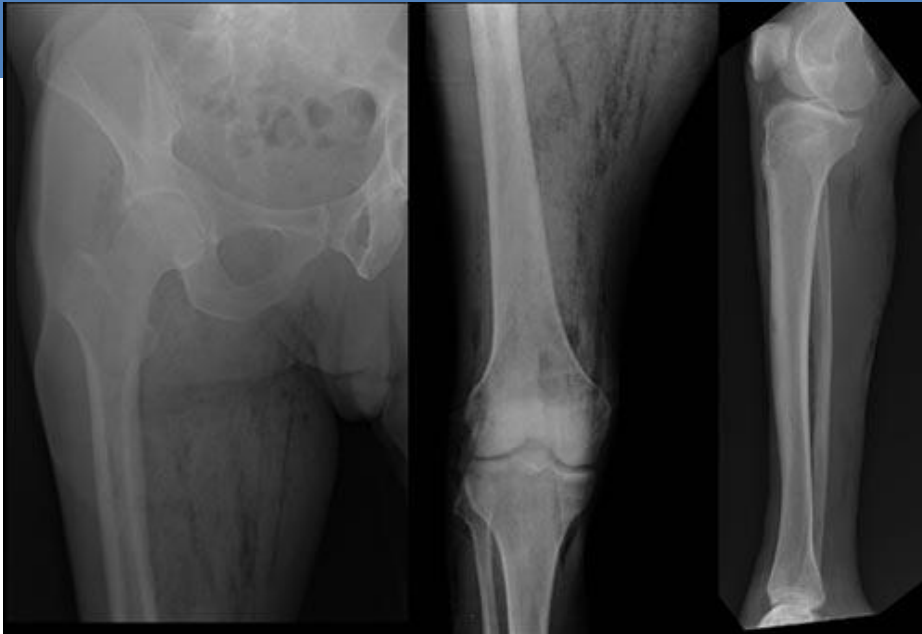
↓Hgb

↑Glucose

↑Cr

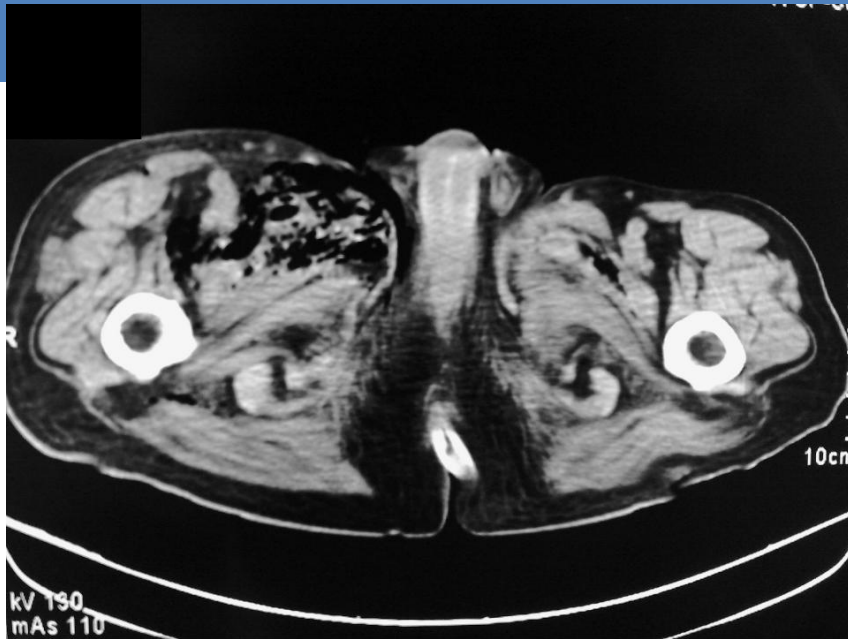
<http://osuemed.wordpress.com>

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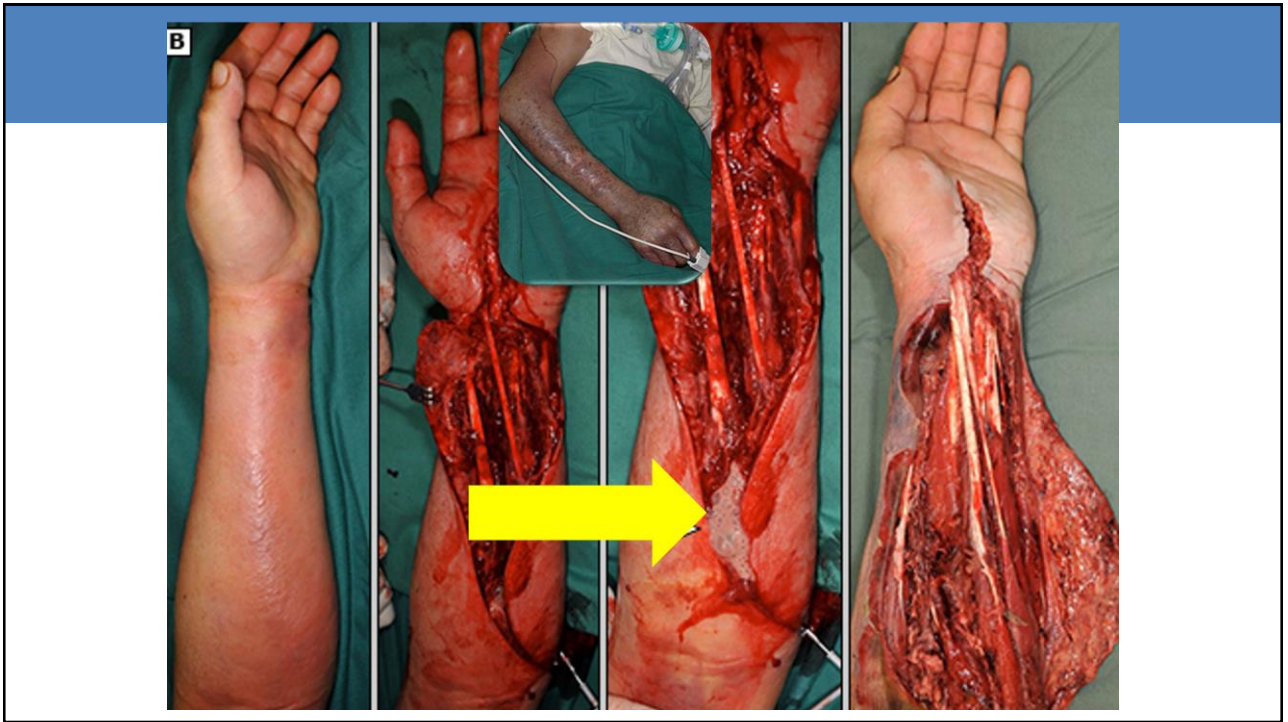
<http://www.radiologyinfo.org/en/photocat>

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<http://radiopaedia.org/images/313989>

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137



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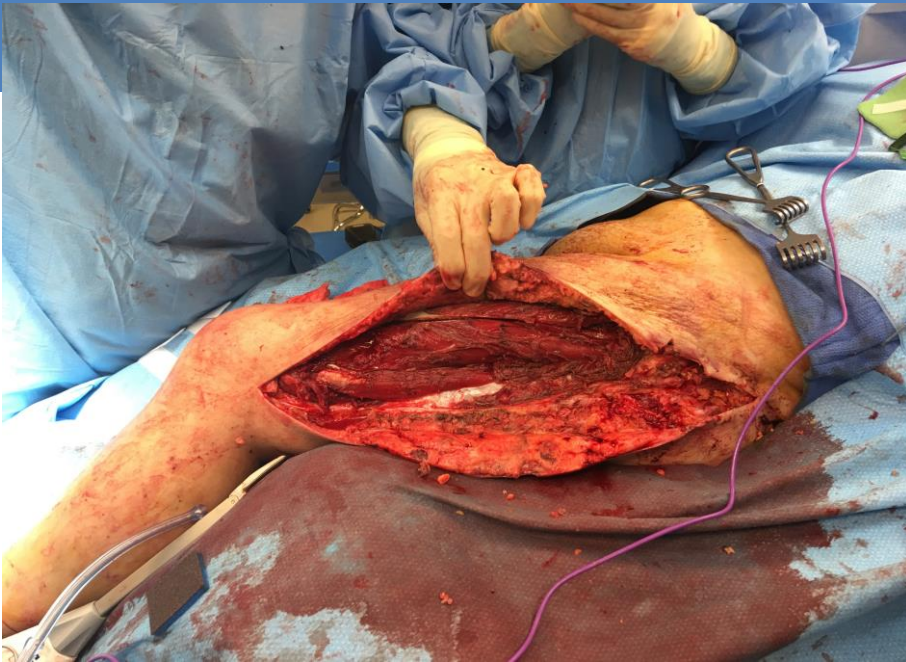


Photo courtesy Demetrios Demetriades, MD PhD

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Necrotizing Fasciitis



Rapid Progression
Pain out of Proportion
Subcutaneous Gas

SURGICAL EMERGENCY

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141



Diseasespictures.com

142



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Henoch Schönlein Purpura



wikipedia.com

144

HSP Rash

Often Initially
Macular, Urticarial



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Hemorrhagic Bullae



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**GU Pain/
Swelling
May be
ONLY
Presenting
Symptom**

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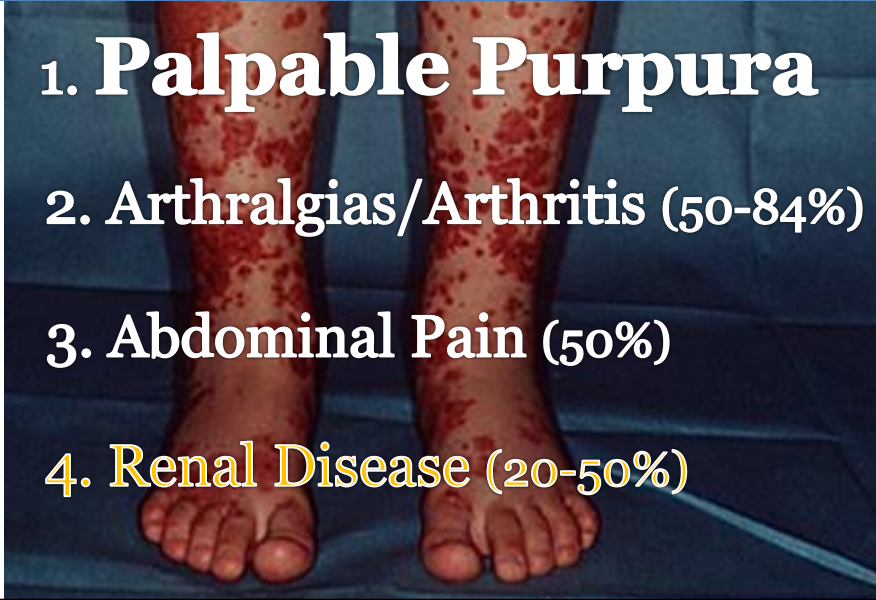
Henoch Schönlein Purpura

1. Palpable Purpura

2. Arthralgias/Arthritis (50-84%)

3. Abdominal Pain (50%)

4. Renal Disease (20-50%)



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Palpable Purpura



Dependent Areas

Symmetric

Edema

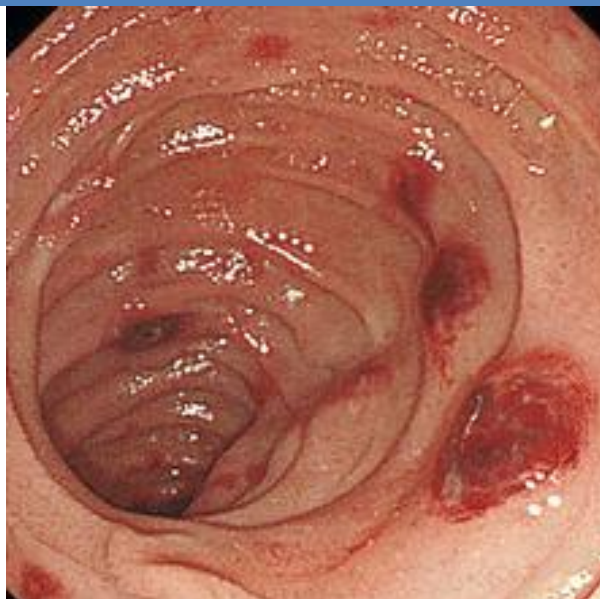
150

Arthralgias/Arthritis



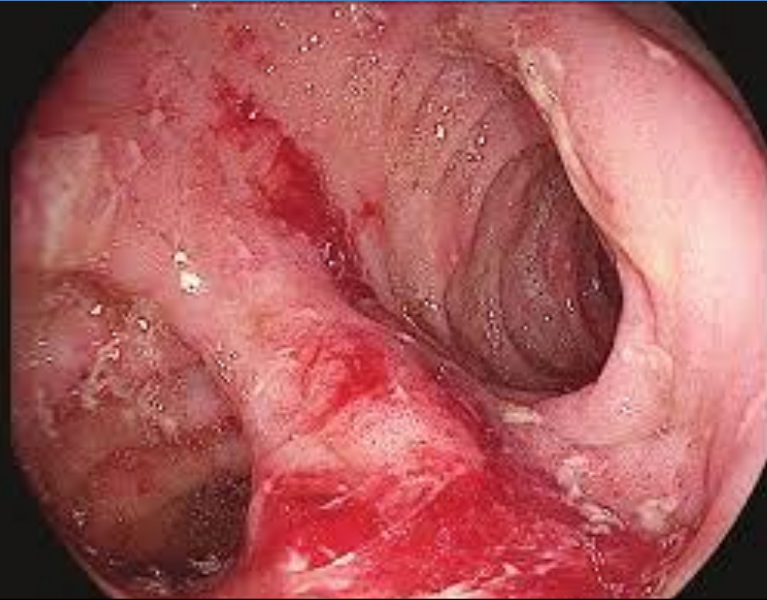
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Intestinal Purpura



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Submucosal Hemorrhage



153

Submucosal Hemorrhage



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Testing in HSP?

Urine Dip in ALL patients

Serum Creatinine In all adults;
If urine abnormal

CBC if atypical presentation, uncertain diagnosis

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HSP Treatment

NSAIDs for pain

Steroids decrease abdominal pain/arthritis but
DO NOT impact outcome

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HSP Follow Up

ALL need **PMD** (may develop renal sequelae)

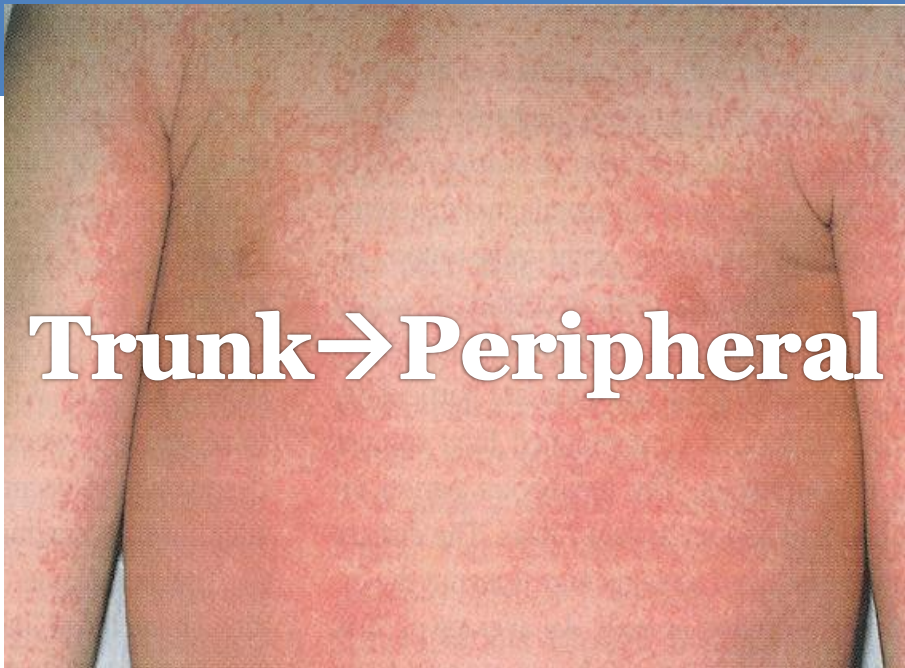
Abnormal urine/normal Cr
nephrologist follow up

Abnormal Cr → nephrology consult

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Pastia's Lines

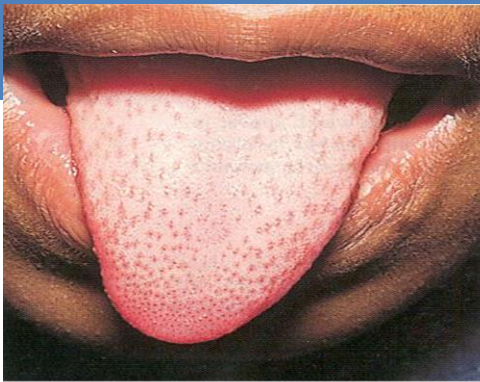


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Scarlet Fever

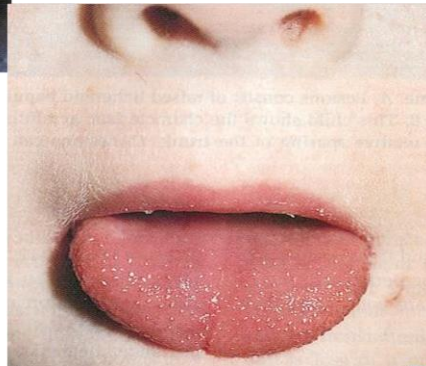


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**WHITE
STRAWBERRY
TONGUE**

**RED
STRAWBERRY
TONGUE**



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Desquamation



164

Scarlet Fever

Tx: Penicillin

165

Treatment

Penicillin G Benzathine

If <27 kg: 600,000 units IM once
If >27 kg: 1.2 million units IM once **or**

Penicillin VK

If <27 kg: 250 mg PO q8-12h for 10 d
If >27 kg: 500 mg PO q8-12h for 10 d

Amoxicillin

50 mg/kg PO q24h **or**
25 mg/kg PO q12h for 10 d

GAS typically
self-resolves
without
antibiotics

Pain
control

Antibiotics do not
prevent
glomerulonephritis

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medscape.com

167

Nikolsky Sign



168



medscape.com

169



medscape.com

170



Photo courtesy Neil Rifienbark, MD

171



Photo courtesy Neil Rifienbark, MD

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Arjun Dupati, MD; University of Michigan Department of Dermatology

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Arjun Dupati, MD; University of Michigan Department of Dermatology

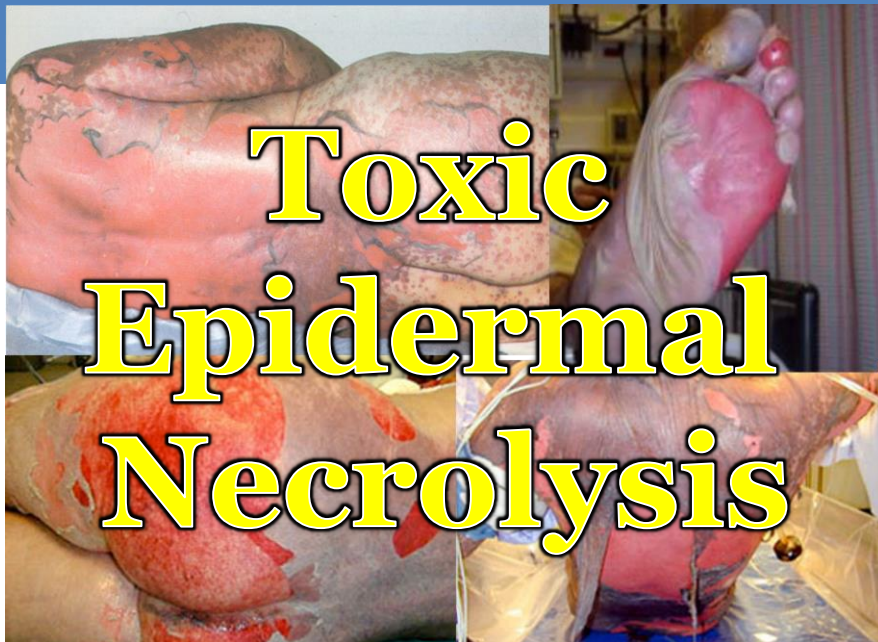
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Relative Sparing of Distal Extremities



Arjun Dupati, MD; University of Michigan Department of Dermatology

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SJS **< 10%**
TBSA

> 30% **TEN**

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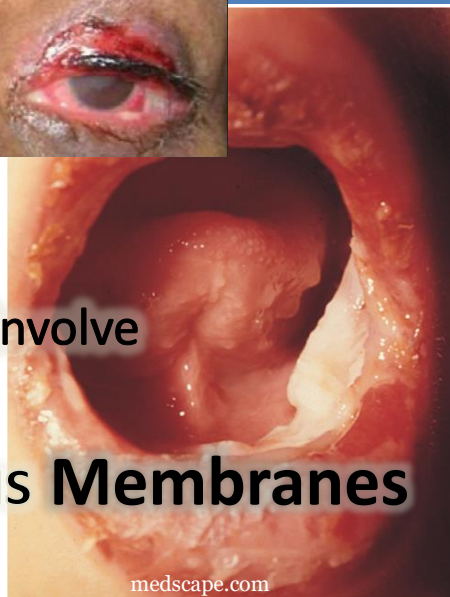
Photo credit: Tracie Pearson, MD University of Michigan Department of Dermatology

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Photo credit: Tracie Pearson, MD University of Michigan Department of Dermatology

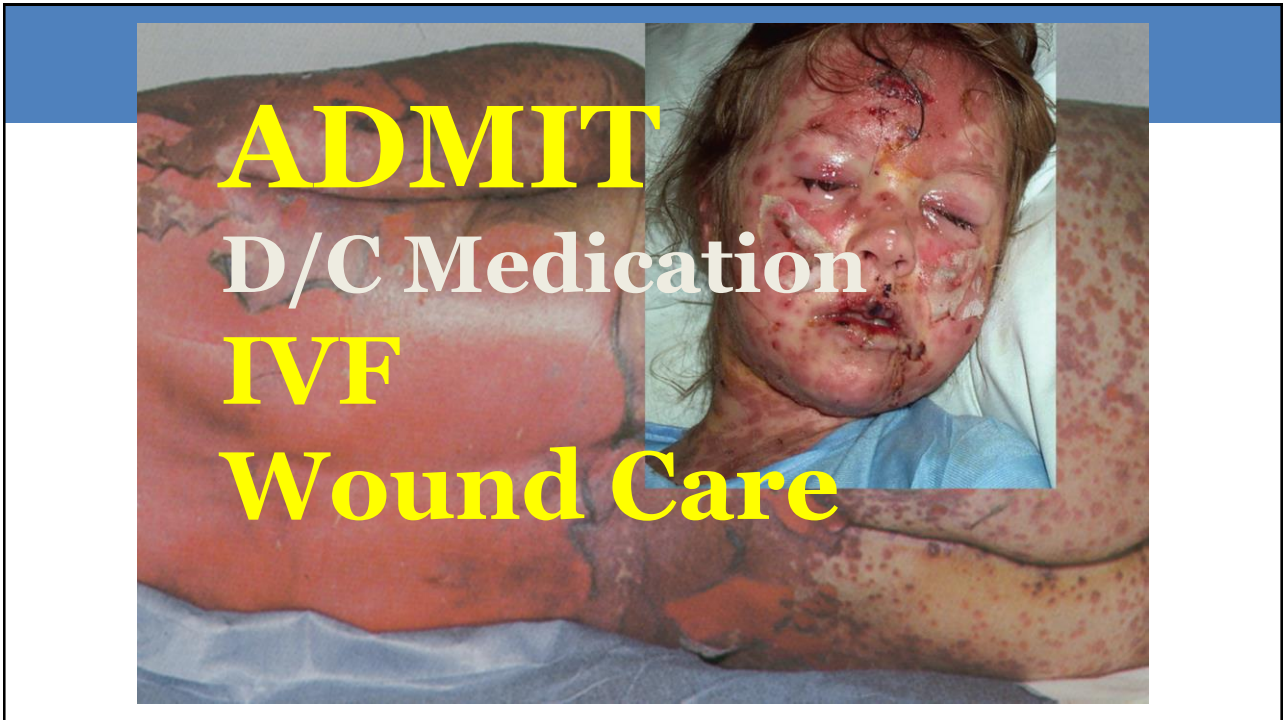
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>90% involve
≥ 2 Mucous Membranes

medscape.com

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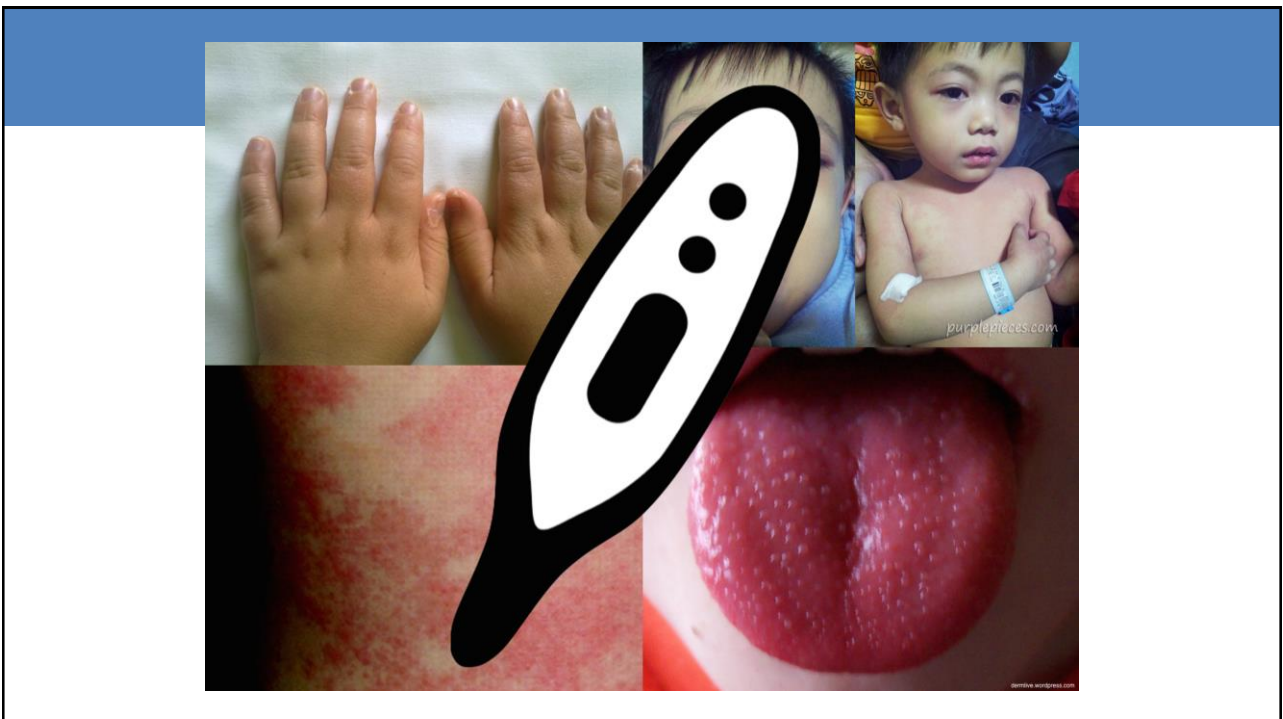
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187

Fever x5 Days

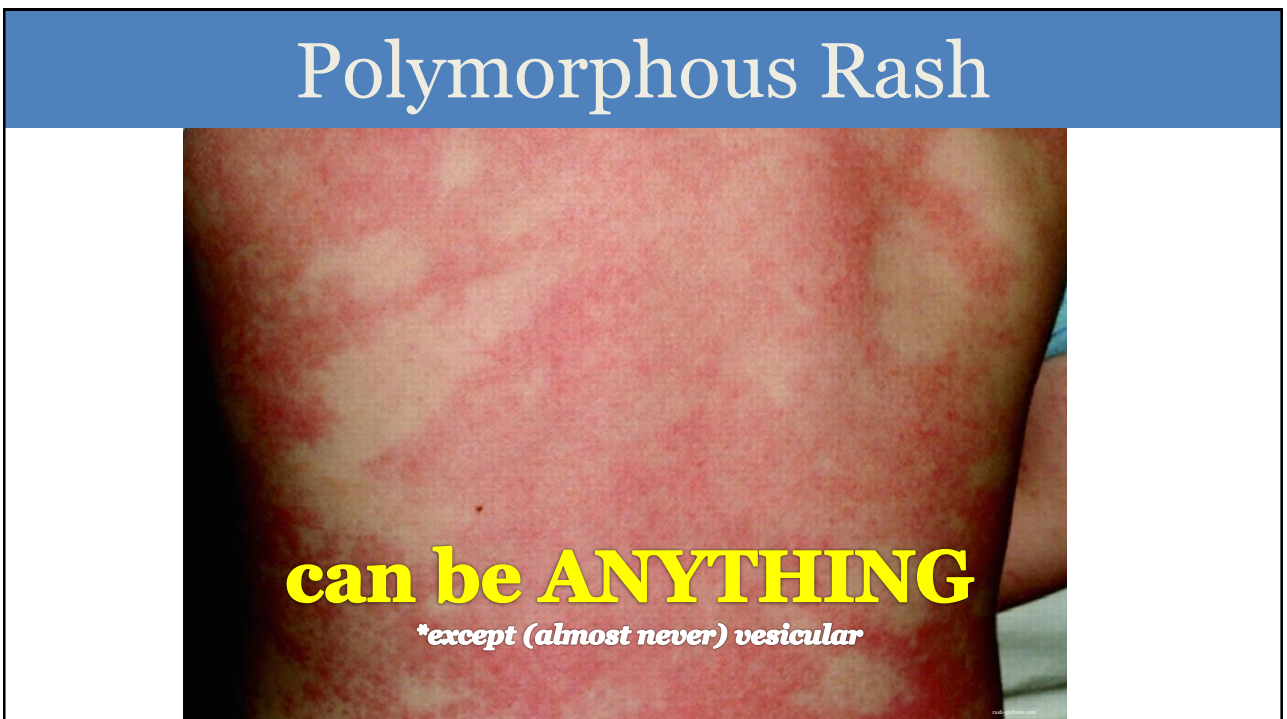
+ 4/5 criteria:

- **Conjunctivitis (85%)**
- **Mucosal changes (90%)**
- **Extremity changes (75%)**
- **Cervical lymphadenopathy (40%)**
- **Polymorphous rash (80%)**

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Conjunctivitis



191

Mucositis



192



193



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Fever x5 Days

+ 4/5 criteria:

- Conjunctivitis (85%)
- Mucosal changes
- Extreme irritability
- Lymphadenopathy (40%)
- Polymorphous rash (80%)

Incomplete/Atypical

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Incomplete Kawasaki

LESS criteria

fever <5 days



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WBC
CRP
ESR
Plt
ALT

Sterile
Pyuria

Hgb
Albumin
Na

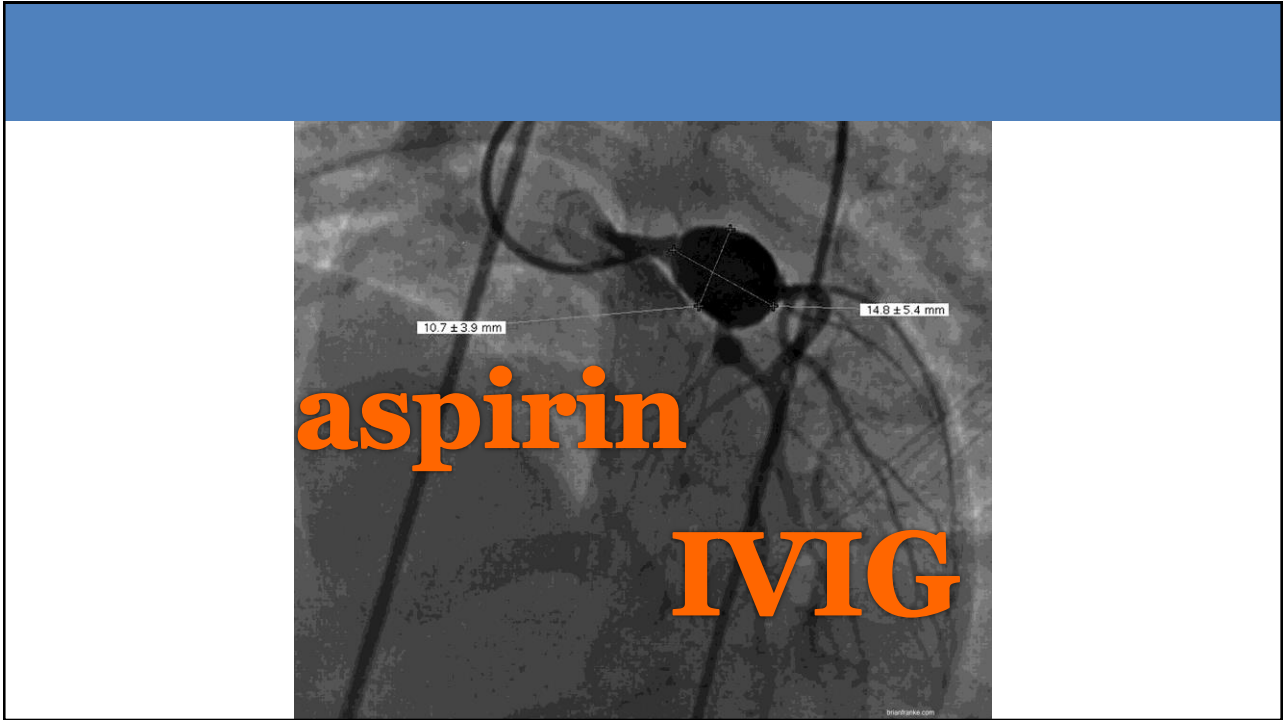
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Coronary Artery Aneurysm

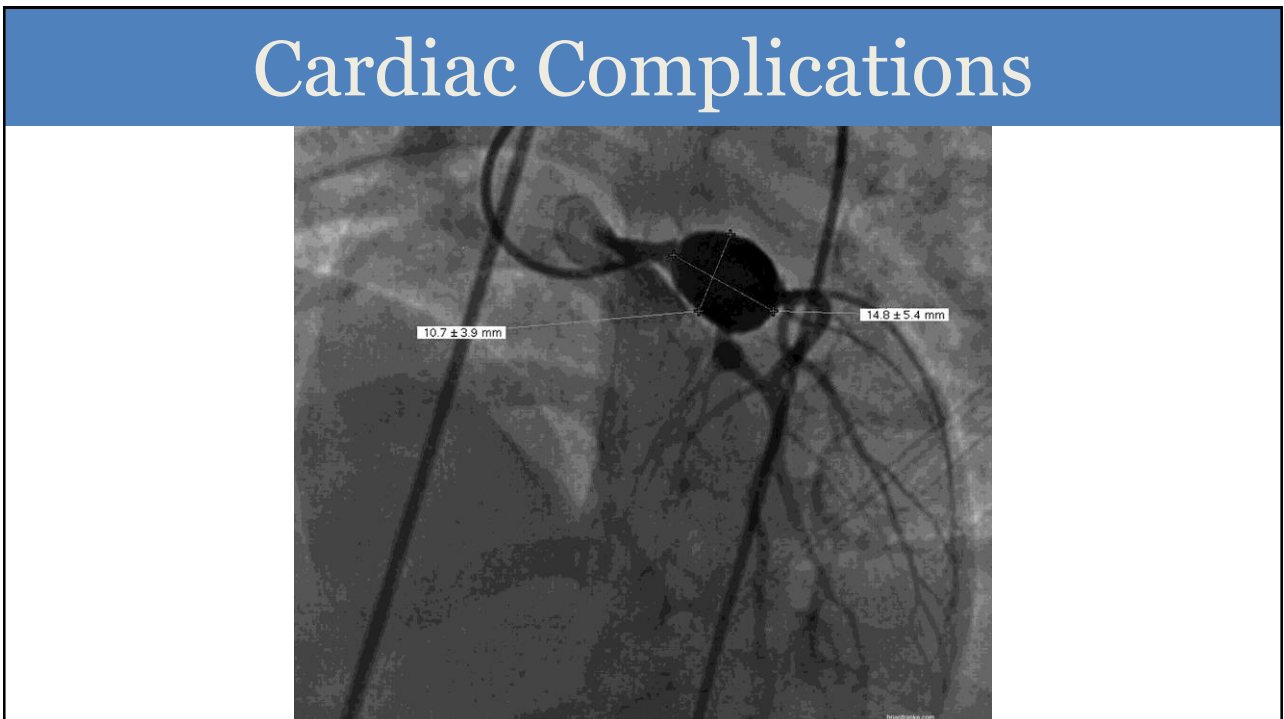
10.7 ± 3.9 mm

14.8 ± 5.4 mm

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199



200



http://jakejakeny.blogspot.ca/2009_11_01_archive.html

201

Anaphylaxis:



202

Anaphylaxis:




Clinical Dx

medscape.com

203

Anaphylaxis:



**20% without
Rash**

medscape.com

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Skin/Mucosa
Respiratory
Gastrointestinal
Cardiovascular

<http://foodservicegateway.com.au>

205

Epinephrine



THE Treatment

206

Epinephrine



0.01 mg/kg

1:1000 IM

207

Epinephrine



0.15 mg IM

0.3 mg IM

208

Epinephrine

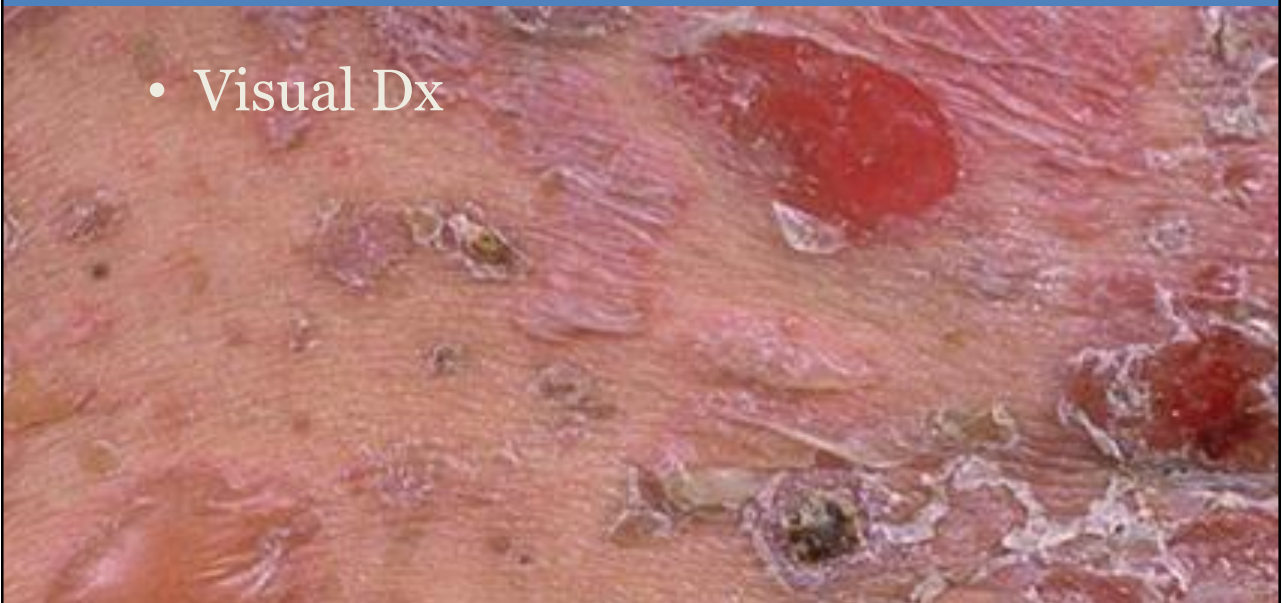


10 mcg/kg IV
0.1 mcg/kg/min
1:10,000

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Resource Recommendation

- Visual Dx



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