Visual Diagnosis in Pediatric Medicine

Martin Belson, MD
Pediatric Emergency Medicine Associates, LLC
Pediatric Sedation Services, LLC
Children’s Healthcare of Atlanta, Scottish Rite and Egleston
Wellstar Hospital Systems
Objectives

• Identify common pediatric rashes

• Identify signs of child abuse

• Identify common illnesses using radiographs and other imaging
Infant rashes
Neonatal acne

• 20% of newborns
• Etiology: maternal and endogenous androgens
• Lesions involute within 1-3 months
• Treatment usually unnecessary
Erythema Toxicum Neonatorum

• Benign, self-limiting

• Presents at 1-4 days of life usually fades in 1 week

• Solitary pustule or papule on erythematous base
Figure 2: Transient neonatal pustular dermatosis
Transient Neonatal Pustular Melanosis

- Benign, self-limited, idiopathic rash at birth
- Mainly African American infants
- Vesicles, pustules rupture quickly leaving pigmented macules

Figure 2: Transient neonatal pustular dermatosis
Neonatal Herpes Simplex Virus

• Most caused by HSV type 2

• 3 forms:
  1. SEM: skin, eyes, mouth
  2. Disseminated: affects organs (e.g., liver)
  3. CNS: encephalitis

• Manifestations generally occur at 1 - 3 weeks
Diaper Dermatitis
Diaper Dermatitis

**Candidal:**

- Beefy red plaques, satellite papules, superficial pustules
- In the skin folds
- Antifungal topical agents (nystatin, miconazole BID/TID)
Diaper Dermatitis

Perianal Strep:

- Group A Strep

- Sharply demarcated, painful/pruritic, erythematous, perianal rash

- NO satellite lesions

TX: Amoxicillin (40mg/kg div BID x 10d)
Scabies

- Itch mite, highly contagious

- Finger webs, wrist flexor, elbow and knee extensor surfaces, genital region, axillary region

- 5% Permethrin cream x 2 applications 1-2 weeks apart
Pityriasis Rosea

- Herald Patch (50 - 90% of cases) followed by smaller “daughter” patches that follow skin lines
- “Christmas tree” pattern
- Pruritic
- No tx needed, lasts 6-8 weeks
Eczema (atopic dermatitis)

- Chronic inflammatory skin condition
  - Family hx common

- Pruritic, red, scaly, crusted
  - Infants: face, extensor surfaces
  - Older: flexural distribution

TX:
- Skin Hydration
- Topical steroids
  - PO in severe cases
Eczema herpeticum

- Skin that is affected by eczema comes into contact with the herpes virus

- It is most often caused by contact with a cold sore (HSV-1)

- Herpetic keratitis - infection in the cornea of the eye

- Treatment: Acyclovir, possible hospitalization
Herpetic Infections: Varicella

“Chicken Pox”

- Fever, malaise, pharyngitis, anorexia
- Generalized vesicular rash, pruritic
- CROPS of lesions in VARYING stages

TX:
- Antihistamines, Tylenol
- Acyclovir (20mg/kg PO QID within 24 hrs of rash in severe presentations)
Herpetic Infections: Shingles

- Reactivation of latent Varicella within sensory ganglia
  - Unilateral, painful, dermatomal distribution
  - Prodromal pain/burning sensation

TX: w/in 72hrs valacyclovir 1000mg TID
Impetigo

- likely to develop when their skin is already irritated by another problem, such as eczema, poison ivy, insect bites

- two types: non-bullous (crusted) and bullous (large blisters)

- Staph, Strep treated with antibiotics
Coxsackie: Hand, Foot, Mouth

- Painful red lesions, high fever, drooling, flu-like illness

- Most commonly kids under 5 yo

TX: Supportive care
Parvovirus B19

• Fifth disease, Erythema Infectiosum

• Fever, coryza, headache

• Rash 2-5 days after fever onset
  – “slapped cheeks”
Roseola (HHV): Sixth disease

- 6 months - 2 yrs
- 3-5 days HIGH fever
- Abrupt resolution
- Followed by rash
  - neck/trunk predominantly

- Rash appears several hours to 2 days after fever subsides
- Erythematous maculopapular or macular rash may be surrounded by whitish ring
- Blanches with pressure
- Predominantly on neck and trunk
- Usually persists for 24-48 hours
15 yo female presents with fever, vomiting, myalgia, and confusion.

Vitals: hypotension

Labs:
- elevated LFTS and Creatinine
- thrombocytopenia
Toxic Shock Syndrome

Etiology:
  Staph aureus, Grp A Strep

Desquamation 1-2 weeks post onset

TX:
  • Supportive care
  • Clindamycin + Vancomycin
Meningococcemia

- Neisseria meningitides
- Bacteremia and/or meningitis
- Nonspecific prodrome >> Non blanching, petechial rash
- Often to trunk and legs first, rapid progression
- Treatment: Supportive care, 3rd generation cephalosporins
Staph Scalded Skin Syndrome

- Exfoliative toxins spread hematogenously
- Typically < 6 years of age
- Fever, malaise
- Painful erythroderma >> blisters >> sheets of peeling skin (Nikolsky sign)
- Spares mucosal membranes

**TX:**
- Staph coverage (Clinda for inhib of endotoxin production)
- Fluids/supportive care
Erythema Multiforme

• Target lesions

• Etiology:
  Idiopathic
  Infections (HSV, Mycoplasma)
  Medications (Sulfa, anticonvulsants)

• EM minor - no mucosal involvement

• EM major (not Steven-Johnson)
  – one or more mucous membranes
Stevens Johnson Syndrome

- Minor form of Toxic Epidermal Necrolysis (TEN) with < 10% BSA detachment
- Etiology: idiopathic, infections (EBV), drugs (antibiotics)
- Prodrome: cough, HA, malaise, fever
- Rash: erythematous/purpuric macule or targets, painful, blistering, sloughing
- Mucosal involvement, eye complications
- Treatment: Supportive, ocular therapy
Toxic Epidermal Necrolysis (TEN)

- Widespread blisters predominant on the trunk and face, presenting with erythematous or pruritic macules and one or more mucous membrane erosions

- Epidermal detachment < 10% TBSA for Steven-Johnson Syndrome

- Epidermal detachment of > 30% TBSA for TEN

- Overlapping SJS/TEN for 10-30% TBSA
Urticaria

- Pruritic, erythematous plaque, raised, often with central pallor
- Waxes and wanes

TX: Removal of offending agent, benadryl, steroids
HSP (IgA vasculitis)

- Self limited, 3-15yo
  - Palpable purpura
    - Normal PLT count, normal coags
  - Arthritis/arthralgia
  - Abdominal Pain
    - Increased incidence intussusception
  - Renal disease

- CBC, BMP, UA, +/- abd US

TX: supportive care, NSAIDS for pain, +/- steroids
Kawasaki disease

Symptoms:

• Fever >39.4°C > 5 days
• Conjunctival injection
• Mucous membranes
• Extremity changes
• Erythroderma
• Cervical nodes

TX:
• Hospitalization
• IVIG 2gm/kg
• Aspirin 100mg/kg/day
**RMSF**

- Dog, wood tick

- Maculopapular rash 2-4 days after fever onset
  - Palms and soles; starts wrists and ankles

- Low Na, elev LFTs, thrombocytopenia

**TX:** Doxycycline
Erythema Migrans

• Lyme Disease
  – B. burgdorferi
• Early manifestation
• Bells Palsy, Arthritis, Carditis

TX: Doxycycline (under 8yo may consider Amoxicillin if no concern for RMSF)
Brown Recluse
Neonatal Mastitis

- Staph aureus in most cases
- Usually full-term, < 2 months of age
- Over 50% with an abscess
- Antibiotic choices dependent on severity/complications, gram stain
Omphalitis

• Most are polymicrobial

• Mean age 5-9 days

• Complications: necrotizing fasciitis, myonecrosis, sepsis

• Treatment: Vancomycin, aminoglycoside
Umbilical granuloma

- Scar tissue develops once cord falls off
- May develop if cord on for more than a few weeks
- Drainage may be present
- Treatment: silver nitrate
Child Abuse

• >1 million substantiated cases/year

• Estimated that 2-5 cases go unsubstantiated for every one proven

• 2,000 deaths/year

• 18,000 permanently disabled/year

• 150,000 serious injuries/year

• Leading cause of trauma-related death <4 years of age
General Characteristics of Child Abuse

- Injury inconsistent with history or child development
- Changing or evolving history
- Delay in seeking care
- Inappropriate affect of caregiver
Physical Findings of Abuse

- Bruises in unusual number, location, pattern
- Burn characteristics
- Orthopedic injuries (multiple injuries of different ages)
- Retinal hemorrhages
- Intracranial hemorrhages
Bruises

- Most common physical finding in cases of abuse
- Present in >90% of abuse cases

Normal bruises:

1. Bony prominences (shins/elbows/chin/forehead)
2. Ambulatory children
3. No patterns
Concerning Fractures

- Classic Metaphyseal Fractures (CMFs)
- Spiral fractures
- Rib fractures
- Skull fractures associated with intracranial bleed
- Multiple fractures and in various stages of healing
Classic Metaphyseal Fractures

• “Corner” or “bucket handle” fractures
Spiral Fracture

Warning: Not for diagnostic use
Pattern Burns
Scald Burns

Accidental
• Consistent with history and developmental level
• Scalds should flow
• Asymmetric, often splash

Inflicted
• Patterns more definite
• Linear circumferential burns without splash marks - consistent thickness burns

- Other stigmata of abuse
## Physical findings

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Sparing
Withdrawal

Signs of motion
– No pattern
– Random, hard to reproduce
• Asymmetry
Symmetry
Splash, flow

Line of flow with variable thickness
• Variable depth - partial thickness to first

• Reproducible with flowing liquid

• Sparing not always from flexion