Dermatologic Emergencies

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Petechiae - punctate lesion secondary to organism invading capillary endothelial cell > inflammation > lose integrity of cap wall > hemorrhage
- above nipple line common due to increase pressure secondary to cough/emesis
- meningococcemia / RMSF until proven otherwise

Bacterial infections

A) Meningococcemia - N. meningitidis bacteremia

- Epidem.: transm.= resp. droplets, usually < 2, winter / spring
- Prodrome: malaise, fever, URI, myalgia
- Symptoms: fever, arthralgia, meningismus, shock, DIC
- Rash: macs/pap/pet/purp., distrib. usually trunk & extrem., also palms/soles
- Dx: BC (> 90% +), CSF (1/3 +), stain skin (85% +), low plt.
- Tx: supportive, Ab (PCN, Claforan), tx DIC

B) Rocky Mountain Spotted Fever - Rickettsia rickettsii

- Epidem.: 2/3 <15yo., vector = infected tick (dog tick in east), Apr.- Sept. : only 2/3 aware of bite, > SE, male > in west, female/child > east
- Hx: gradual or acute onset, incubation 3-14 days ( 7 )
- Prodrome: anorexia, irritab., malaise, chills
- Symptoms: HA, myalgia, photophobia, edema, HSM, neuro., hyponatremia, shock, renal failure
- Rash: appears by day 4 (2-6), first on wrist/ank. > palms/soles > trunk : eryth. blanching macules > 1-3d. deep red papule > petech./purp. (13% no rash)
RMSF cont.
- Dx: clinical, immunofluorescent studies of skin, IFA (serology), low plt.
- Tx: supportive, tetracycline, chloramphenical, prevention (constant checks)
- **Ehrlichiosis** - E. equi (deer tick), < rash, leukopenia, tx: doxy., tetracycline

C) Staph Scalded Skin Syndrome
- Epidem.: Staph aureus (phage grp. 2) > colonizes nose, conjuct., umbilicus > exfoliative exotoxin > hematogenous > skin
  - infants < 2, any season
- Symptoms: abrupt onset - fever, URI, conjunct., irritability
- Rash: tender erythroderma, first perioral, neck, intertriginous areas
  - widespread 1-2 days > bullae > Nikolsky’s sign (skin removed by light stroking)
  - cleavage w/in the epidermis (granular layer)
  - no mucous memb. involvement, rash heals 5-7 days
- Dx: clinical, stain/bx of bullae, BC
- Tx: supportive, cool compresses, oxacillin / dicloxacillin

D) Toxic Shock Syndrome
⇒ Epidem.: Staph. Aureus (phage grp. 1), Grp. A Strep, both sexes, majority secondary to high absorbing tampons, ? pathogenesis, other risk: burns, bites, wounds
⇒ Rash: within 24 hrs. of fever - scarlatinoform erythroderma (nontender), maybe petechial
  - desquamation in 1-2 weeks espec. palms & soles
⇒ Hypotension
⇒ 3 or more of following:
  1. GI - NV
  2. Muscular - myalgia, increase CPK
  3. Renal - increase Cr.
  4. Mucosal membrane - vagina, conjunct. hyperemia, strawberry tongue
  5. Hepatic
  6. CNS - AMS
  7. Thrombocytopenia
⇒ Dx: clinical, cultures
⇒ Tx: supportive, antistaph. / antistrep Ab
⇒ **Strep TSS**: exotoxin A, less severe prodrome, tender rash, scarlatinoform, > focal infection, > BC +, > coagulapathy, > gangrene, > mortality, Tx: Naf / Clindamycin
E) Scarlet Fever

* Epidem.: Grp. A Strep. > erythrogenic toxin, > school-aged, fall to spring
* Symptoms: fever, abd. pain, sore throat, rash
* Findings: cervical LA, exudative pharyngitis, strawberry tongue
* Rash: Within 24 hrs. of symptoms, neck > trunk & extremities
  : diffuse erythematous papules (sandpaper) that blanch > desquamation day 4
  : Pastia’s lines - petechiae in intertriginous areas
* Dx: clinical, culture      Tx: PCN

F) Strep / Rheumatic fever

⇒ Major criteria: carditis, chorea, polyarthritis, subcut. nodules, & erythema marginatum
⇒ Minor criteria: fever, arthralgia, + hx., prolonged PR interval, > WBC, > WSR
⇒ Erythema marginatum: 10-15% have rash, also in JRA, mainly trunk & extrem.
  : pink macs/paps fade centrally > nonpruritic rings w/ elevated reticulated or serpiginous borders
  : spreads rapidly & fades rapidly

G) Cat Scratch Disease

• Epidem.: Bartonella henselae - gr. neg. rickettsia, > males, < 21, transm. by kittens
  : hx. contact w/ cat > 90%, evidence of cat scratch in 2/3
  : incubation 3-30 days (7-12d)
• Rash: red papule @ inoculation site > crusted, vesicular
• Findings: Lymphadenopathy 1-4 weeks later - tender, red, indurated
  : Parinaud’s oculoglandular syndrome - unilat. conjunctivitis w/ preauricular nodes
• Complications: pneumonitis, CNS (enceph. w/ out cells), abscesses, thrombocytopenia
• Dx: clinical, Warthin-Starry silver stain, serum Ab to B. henselae 85%
• Tx: resolve spont. 2-4 months, aspirate nodes, Ab early (gent., bactrim, cipro, rifampin)

H) Lyme Disease
Treponemal infection - spirochete Borrelia burgdorferi
- Epidem.: transmitted by Ixodes ticks, entire U.S., may - august, 1/3 recall tick bite
- Acute / Early phase: malaise, fever, HA, meningitis
  - **Erythema migrans** - 75%, 3-32 days after bite, start as red mac/pap > annular >
    - enlarges rapidly (hot, itchy) > disappears w/in 2 months
    - > thighs, buttocks, groin & axilla
      - multiple rings 1/3
- Late phase: if untreated complications: Neuro. 15%, Cardiac 5-8%, Rheum. 50%
  1. **Neuro.** - 1 month later, Guillain Barre, peripheral neuropathy, Bell’s palsy
  2. **Cardiac** - 3-21 wks. later (1 mo.), AV block (brief)
  3. **Rheum.** - 4-6 wks. later, joint swelling > knee, 10% chronic
- Dx: clinical, histology, serology (EIA, IFA, IGM)
- Tx: prevention w/ inspection, Ab shorten duration (teta., doxy., amoxil)

**Exanthematous diseases**

**A) Varicella - chickenpox**
- Epidem.: < 10, fall to spring, highly contagious, resp. droplets & direct contact
- Incubation: 8-21 days
- Prodrome: one day if any
- Rash: papules > vesicles on eryth. base > umbilicated > crusted (**different stages noted**)
  : starts on face > trunk & extrem., pruritic, oral lesions
- Complications: superinfection (Grp. A Strep), pneumonia, CNS, Reye’s
- Dx: clinical         Tx: sympt., acyclovir if immunosuppressed

**B) Rubeola (Measles)**
- Epidem.: RNA paramyxovirus, infant to young adult, winter/spring, resp. droplets
- Incubation: 8-12 days > fever > cough, conjunctivitis, coryza (**CCC**) w/in 24 hrs.>
  > **Koplik** spots by day 3 > day 4 rash
- Rash: erythem. macs/paps become confluent / starts on face > body then fades by day 7-10
- Complications: pneumonia, encephalitis  Dx: clinical, serology  Tx: symptomatic

**C) Rubella (German measles)**
⇒ Epidem.: rubella RNA virus, adolesc. - young adult, resp. droplets
⇒ Incubation: 14-21 days, minimal prodrome
⇒ Rash: rose pink papules on face > body in one day > fade by day 3
⇒ Other findings: post. cervical nodes, Forchheimer’s spots (palatal petechiae)
⇒ Complications: encephalitis, arthritis, thrombocytopenia, cong. rubella syndrome
⇒ Dx: clinical, serology            Tx: symptomatic

D) Erythema infectiosum (Fifth Disease)

• Epidem.: Parvo-virus B-19, > 5-15yo., winter / spring
• Incubation: 6-14 days, minimal prodrome
• Rash: 1) Slapped-cheek appearance
  2) Erythematous macpap. on trunk / extrem. w/in 2-3 days
  3) Reticular pattern secondary to central fading
  4) Rash waxes & wanes, usually resolves w/in a month
• Complications: hemolytic anemia, hydrops fetalis
• Dx: clinical, serology                Tx: symptomatic

E) Roseola infantum (Sixth disease)( exanthem subitum )

◆ Epidem.: herpes virus 6, < 3yo., sporadic, incub. 5-15 days
◆ Findings: high fever 3-5 days > rash starts with defervescence
◆ Rash: pink mac/pap on trunk > extremities (non-coalescent) > fades in hrs. to 2 days
◆ Other: leukopenia by day 3, febrile seizures, usually looks quite well
◆ Dx: clinical                Tx: symptomatic

F) Mononucleosis

• Epid.: EBV virus (DNA herpes family), 15-25, direct contact (saliva), incub. 30-50d.
• Prodrome: 3-5 days HA, fatigue
• Symptoms: fever, pharyngitis, LA, spleen 50%, liver 20%, supraorb. edema
• Rash: 10-15%, 4-6th day, mac/pap, trunk
  80-90% ampicillin rash
• Dx: clin./serology/heme (anemia, thrombocytopenia, atyp. lymphs., incr. LFT’s)
• Complications: splenic rupture, Neuro (Bell’s palsy, GB)       Tx: symptomatic

Hypersensitivity Syndromes
A) Serum Sickness

* Allergic reaction to drugs (PCN, sulfa, salic.)
* 7-14 days after Ag > fever, LA, myalgia, arthritis, splenomegaly
* Rash: 90% urticarial
* Self-limiting, subsides in 2-3 weeks        Tx: supportive

B) Erythema multiforme

* Hypersensitivity syndrome characterized by skin & mucous membrane involvement
* Multiple etiologies:
  Infectious: Herpes*, Mycoplasma*, Tb, Strep, Mono, yersinia
  Chemicals: terpenes, perfumes, nitrobenzene
  Systemic disease: CVD, leukemia, lymphoma
  Antibiotics: PCN, INH, sulfa, tetracycline
  Anticonvulsants: dilantin, tegretol, phenobarbital
  Other: rads, foods       Idiopathic: > 50%
* Pathogenesis unknown
* Rash: 1-3 wks. after exposure > symmetric, palms, soles, extensor surfaces
  : urticarial, vesicobullae, eryth.paps (target lesions = hallmark)
* Mucous membrane involvement

1) Erythema multiforme minor

- benign, self-limiting, herpes most common etiology, mucous memb. absent or just one
  surface one lesion last 1 week - eruptions continue for 2-3 weeks (overall course 1 mo.)
- Treatment: supportive

2) Erythema multiforme major (Stevens-Johnson)

- Mycoplasma & drugs most common etiology, prodrome 1-14d. - high fever
- Extensive bullae, muc. memb. severe (at least 2 surfaces), last 6 weeks, 5-15% mortality
- Eye complications: conjunct., uveitis, corneal ulceration
- Tx: supportive, ? steroids, ophthalmologic consultation

C) Toxic Epidermal Necrolysis

⇒ Drug- induced exfoliative disorder, rare in children
⇒ Prodrome > tender erythroderma > Nikolsky’s sign / bullae
⇒ Necrosis @ basal cell layer of epidermis = subepid. separation (unlike SSS)
⇒ Mucous membrane involvement
⇒ Dx: skin bx Tx: as a burn pt., ? steroids

D) Erythema nodosum

♦ Delayed cell-mediated hypersensitivity syndrome
♦ > 10, > females, spring / fall
♦ Multiple etiologies:
  - Infectious: Strep, Tb  Noninf.: sarcoid, UC, crohn’s
  - Drugs: sulfa, dilantin, BCP  Idiopathic
♦ Clinical: fever, arthralgia, red, tender nodules > pretibial
♦ Dx: clinical, bx
♦ Tx: rest, sympt.
Vasculitic disorders

A) Kawasaki disease

- Question: etiology, diffuse vasculitis, winter / spring, 6mo. - 6yo
- Clinical criteria: Fever > 5 days and 4 out of 5 of the following:
  1) Bilateral conjunctival injection (nonpurulent)
  2) Polymorphous exanthem
  3) Cervical lymph node > 1.5 cm
  4) Changes in extremeties: edema, erythema palms/soles, desquamation
  5) Changes of oropharynx: fissured lips, strawbery tongue, diffuse erythema (nonexudat.)

- 3 stages:
  1) Acute febrile - 1-14 days, may see diarrhea, asep. meningitis, liver
  2) Subacute - 10-30d. w/ key features, also irritable., peak thrombocytosis
  3) Convalescent- resolves 45-60th day, nl WSR

- Rash: 3-5th day, extremities, no vesicles or bullae
- Complications: GI - GB dilatation, pancreatitis
  - Cardiac - EKG changes, myocarditis, aneurysm (> male, < 2, wbc>30, WSR > 100 and/or elevated > 5 weeks, fever > 15 days)

- Dx: clinical, labs, EKG, Echo
- Tx: aspirin 100 mg/kg/d for 2 wks., IVIG 2 gm/kg over 12hrs.

B) Henoch-Schonlein Purpura

- Vasculitis with deposition of IgA immune-complexes following a URI
- Age 2-11, spring / fall, > males
- Skin, joints, GI, renal
  - Rash: crops of mac/pap on buttocks, extensor surfaces > palpable purpura
  - Rheum: 2/3 of pts., periarticular involvement, transient
  - GI: 75% of pts., abd. pain, melena, intussusception
  - Renal: 20-50%, can be up to a month into the disease, 1% ESRD
  - Other: edema of scalp, feet/hands, scrotum

- Dx: nl platelet count, UA, anemia
- Subsides in 6 weeks, some reoccurrences
- Tx: prednisone
References

2. Peterson PK, Dermatologic manifestations of infectious diseases, 1986
7. Klein JD, Cat Scratch Disease, Ped. in Review, Vol.15. No.9, Sept. 1994, pg. 348-353
Dermatologic emergencies. Anatoli Freiman, Daniel Borsuk and Denis Sasseville. CMAJ November 22, 2005 173 (11) 1317-1319; DOI: https://doi.org/10.1503/cmaj.050783. Dermatologic problems represent about 15%–20% of visits to family physicians and emergency departments. It is often a challenge for a primary care provider to differentiate mundane skin ailments from more serious, life-threatening conditions that require immediate intervention.