

Erythema Infectiosum (Fifth Disease)

Pathophysiology

1. Human Parvovirus B19 (ssDNA) infection
 - The fifth of six classically described pediatric exanths
 - Transmitted through respiratory droplets, fomites, transfusions, crosses placenta
 - Affinity for erythroid progenitor cells (anemia)
 - Pronounced in immunocompromised pts, classically those with sickle cell disease
 - Hct may drop precipitously during infection
 - Fetal transmission: hydrops, CHF (<10%)
 - Antigen-antibody complexes cause skin reaction, arthritis
 - Infectious 24-48hrs before prodrome to rash appearance
 - Aplastic crisis pts. viremic/infectious until RBC recovery
2. Epidemiology
 - Peak incidence: winter-early spring; 5-15yo (70%)
 - Cyclical outbreaks q4-7yrs lasting 3-6mos
 - 60% of pts. w/anti-HPV19 IgG by 20yo
3. Morbidity/mortality
 - Up to 9% risk of fetal mortality in pregnancy exposures (especially early)
 - Associated w/RA, SLE, HSP, myocarditis, neuropathies, encephalitis
 - Arthropathy, aplastic anemia usually resolve w/in 2-4wks (rarely may last yrs)
 - Aplastic crisis rare once rash appears
 - Chronic anemia in immunocompromised pts. until immunity normalizes

Diagnostics

1. Symptoms

- Majority of people infected probably asymptomatic
- Incubation period 4-21d (usual 7-10d)
- Classic prodrome: 1wk s/p exposure, x2-3d (seen in minority of cases)
 - F, HA, sore throat, pruritis, abd pain, coryza
 - More common in adults
- "**Slapped cheek rash**" on face especially in peds (50% adults w/o rash)
 - May be pruritic (especially adults)
 - May have stocking/glove rash: pruritic, painful (rare)
 - May be petechial or purpuric
 - Resolves over 5-7d
 - May fade/recur over several mos: with skin irritation (bathing/sunlight), exercise
- Polyarthrits (usually fingers) 2-3wks after infection
 - Up to 80% of adults
 - Rare in children (<10%), most commonly knees in kids

2. Physical Exam

- Rash: bright red w/circumoral pallor; spares nasolabial folds
 - S/P 1-4d -> maculopapular rash on extremities, extensor surfaces, trunk (palms/soles usually spared)
 - Gradually fades into lace-like reticular pattern (5-7d)
- Most children afebrile, non-toxic appearing
- Pallor, lethargy, tachycardia: aplastic crisis (no rash) - self limited
- Signs of arthritis: small bones of hands/feet, elbows, knees

3. Diagnostic Testing

- Labs
 - CBC: r/o anemia (pregnant, underlying hemolysis)
 - T&C: transfusion if indicated
- Further testing
 - Monitor CBC w/retic count: aplastic crisis
 - Retic count usually <1%; Hct <2g/dl below nl
 - Serum Parvovirus B19 IgM: Dx in question, immunocompromised, aplastic crisis (no rash)
 - Serum Parvovirus B19 IgM and IgG for exposed preg pts.; repeat in 3wks if both negative

Differential Diagnosis

1. Measles (Rubeola)
2. Rubella
3. Roseola Infantum
4. Scarlet Fever
5. Drug Eruptions
6. Lupus erythematosus
7. Other viral exanthems

Acute Treatment

1. Supportive care
2. Medications
 - Fever/pain: Acetaminophen, NSAIDs (avoid ASA in peds: Reyes)
 - Pruritis: Antihistamines (Diphenhydramine), oatmeal baths
 - Immunocompromised, aplastic crisis: IVIG
 - Transfusions as indicated (possibly even intrauterine to prevent fetal hydrops in pregnant women - consultation needed)
 - Decrease immune suppressants/ optimize antiretroviral Tx (HIV)
 - Increase immune system to mount antibody response
3. Isolation for aplastic crisis, immunosuppressed pts.

Disposition

1. Admit
 - Pts. w/aplastic crisis, immunocompromised

Follow Up Care

1. Prevention

- Good hand washing, personal hygiene
- Pregnant healthcare workers should avoid infected pts. (consider check for immunity - most adults immune)
 - OB/Gyn f/u if exposed, acute infected or possibly if not immune

2. Children can return to school once rash appears

- Isolate pts. w/aplastic crisis, immunosuppression

References

1. Nelson Textbook of Pediatrics, 17th ed., Copyright © 2004

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