PETECHIAE AND PURPURA

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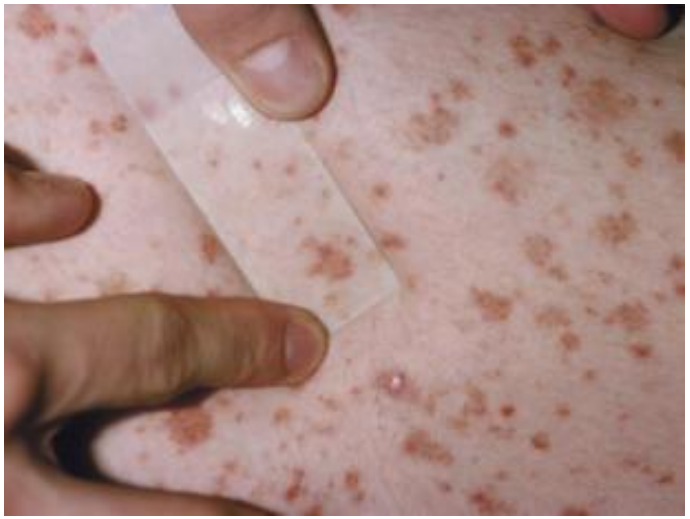
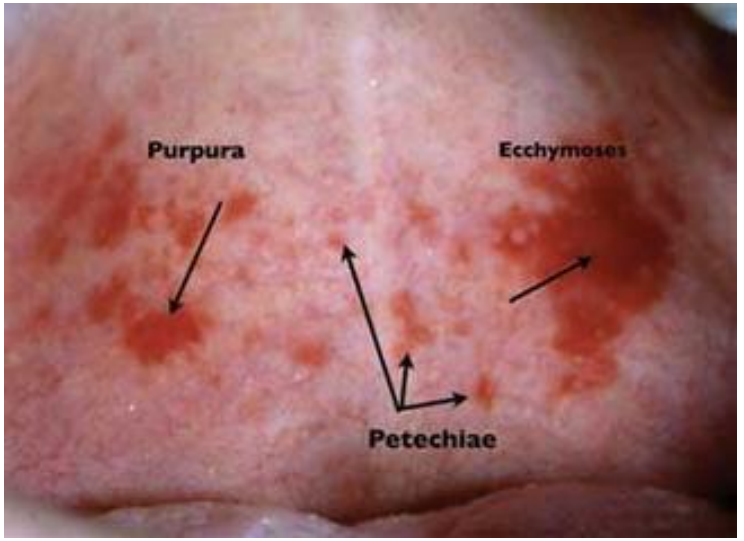
Objectives

- Identification of petechiae and purpura
- Think through broad differential
- Inpatient vs Outpatient management
- History and exam to narrow differential and workup

Petechiae and Purpura

- **Petechiae**
  - Red/purple dots that represent bleeding from leaking capillaries
  - Ecchymosis occur deeper in the dermal layers
- **Purpura**
  - Petechiae that have coalesced and become bigger





Differential is BROAD

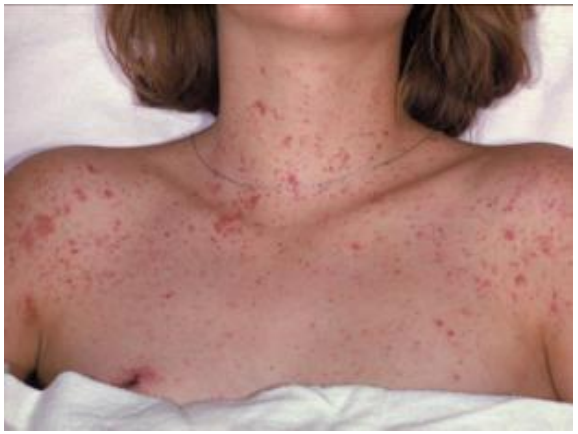
- Vasculitis
- Hemolytic-Uremic syndrome
- Immune thrombocytopenic purpura (ITP)
- Aplastic anemia
  - All cell lines will be down (infectious, medication, or leukemia)
- Trauma
- Hematologic
  - von Willebrand disease or hemophilia

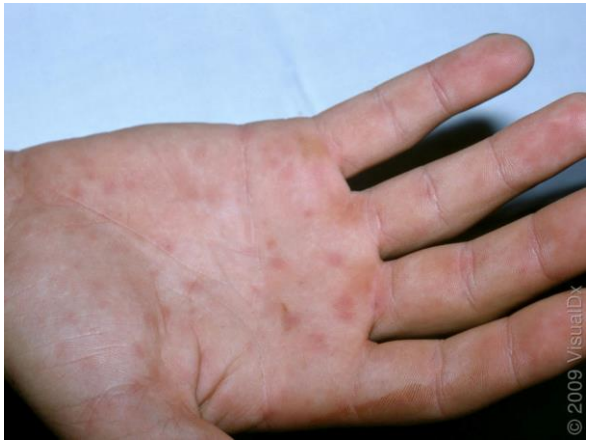
Work-Up

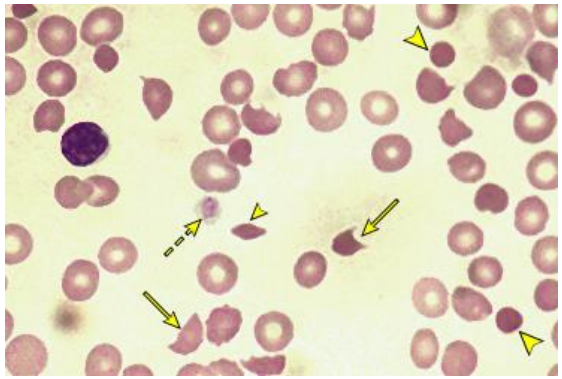
- Labs to consider:
  - CBC - Low platelets? All cell lines down?
  - Coags/fibrinogen/bleeding time - DIC?
  - CRP/ESR - if CRP normal, sepsis is less likely
  - Blood cultures - in ANY febrile patient with petechiae
  - UA - if suspect HSP

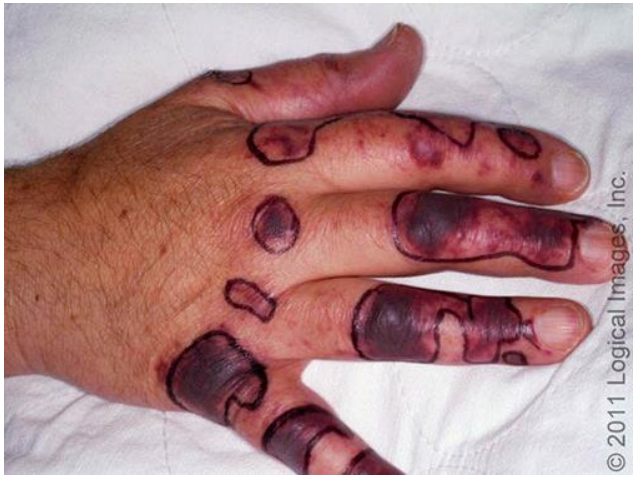
Life threatening causes of petechiae

- Meningococcal septicemia
- Pneumococcal septicemia
- Disseminated intravascular coagulation (DIC)
- Rocky Mountain Spotted Fever



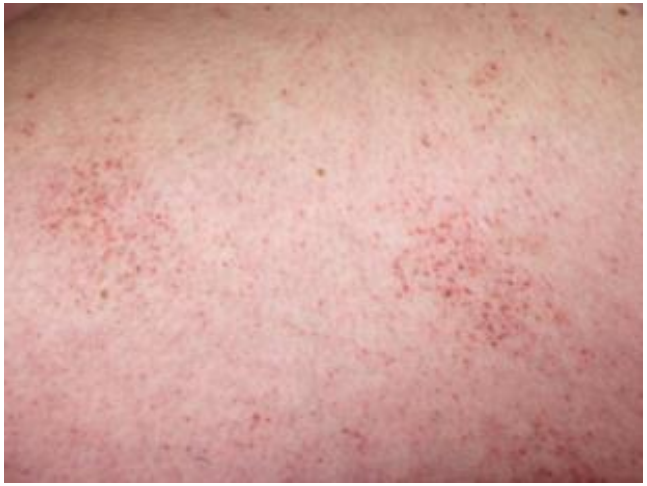






Non-life threatening causes of petechiae

- EBV, Adenovirus, other viruses
- Pertussis
  - Disruption of capillaries due to inc intravascular pressure from coughing or vomiting (above the nipple line)
- Strep pharyngitis
  - Sore throat without cough and petechiae on the soft palate

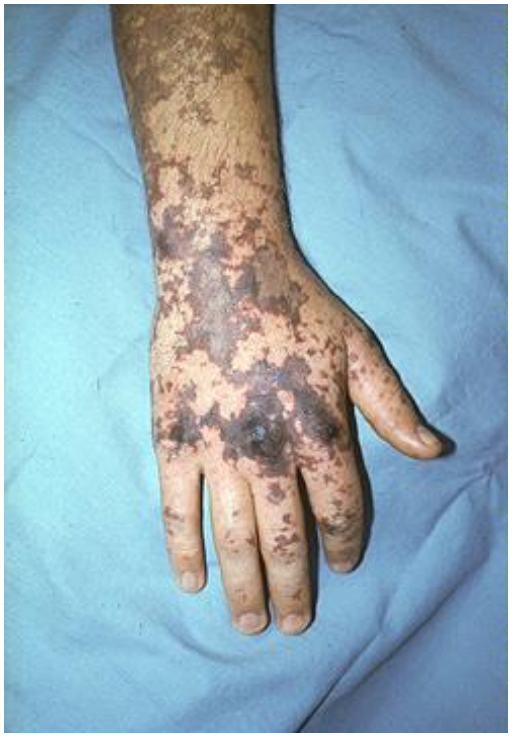


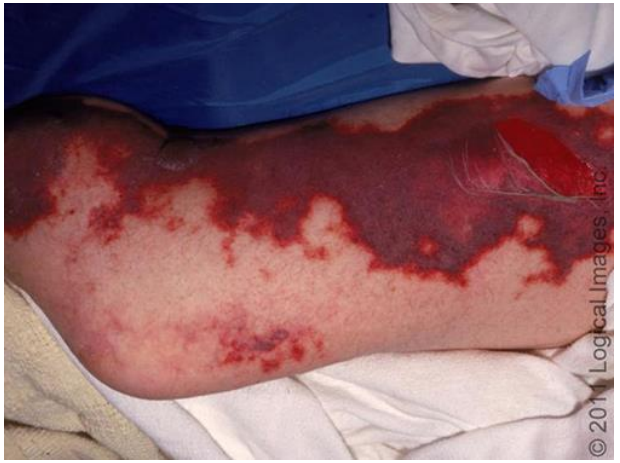
Neisseria meningiditis

- A leading source of community-acquired sepsis and meningitis
  - Serogroup B in < 5 years
  - Serogroups C, Y, and W135 in adolescents and adults
  - US has historic low since quadrivalent conjugate vaccine
- Transmission through respiratory droplets or secretions
- Risk factors
  - Age (younger than 1 year or between 15 and 24 years)
  - Crowded living conditions (military barracks, dormitories)
  - Cigarette smoking (active or passive)
  - Prior viral respiratory infection (especially influenza)
  - Family/household contact with meningococcal disease
  - Immunodeficiency

Neisseria meningiditis

- Fever followed by **petechial rash** (**macules/papules —> petechiae**) and rapid deterioration
- Pallor, mottling, leg pain, or cold extremities are early sensitive signs
- **DIC**: Increasing petechiae, ecchymosis, or bleeding
- **Petechial rash can progress to Purpura fulminans**
  - Can lead to limb ischemia
- Adrenal insufficiency
- Shock





Neisseria meningiditis

- Dx:
  - History and physical exam
  - Blood and CSF culture are gold standard

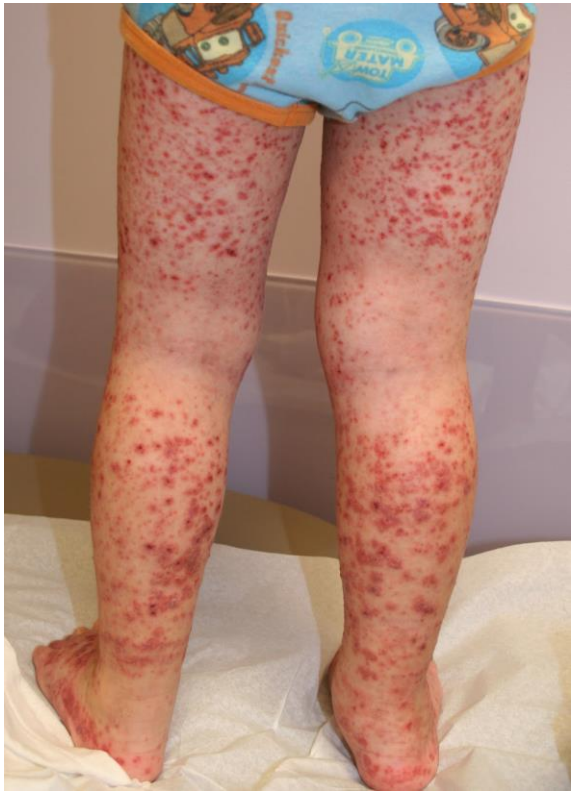
- Treatment:
  - Favorable with early antibiotics (CTX) and correction of shock
  - Chemoprophylaxis for close contacts (>8hr and < 3ft), exposed to oral secretions (kissing, sharing drinks)
    - Rifampin, CTX, or Ciprofloxacin

Henoch-Schonlein Purpura (HSP)

- Most common vasculitis of childhood, < 10yo (peak 4-6 yo)
- Often follows URI, greatest during fall/winter
- IgA deposition in glomerulus, skin, and GI tract blood vessels
- GI
  - Colicky pain
  - Upper/lower GI tract bleeding —> +heme stools
  - Intestinal edema —> intussusception (throughout, not just ileocecal)
- Kidney: greatest risk for **morbidity**
  - Hematuria, proteinuria, azotemia or hypertension
  - Renal bx with suspicion of nephritic or nephrotic syndrome
    - IgA immune complex deposition in renal mesangium
- Arthritis/Arthralgia

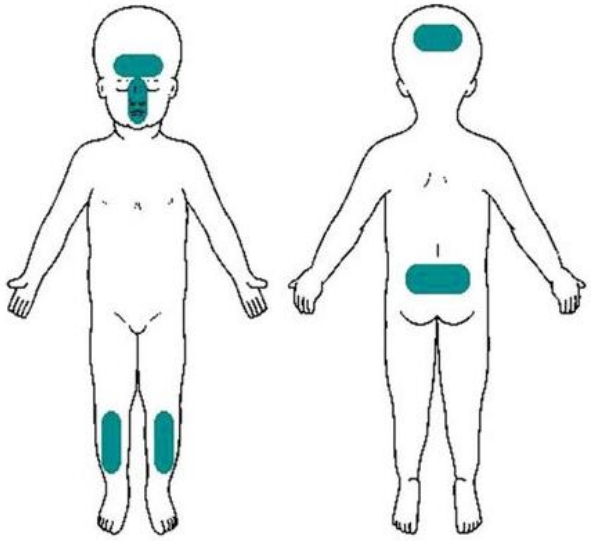
Henoch-Schonlein Purpura (HSP)

- Rash (not always first) followed by abdominal symptoms and arthralgia
- **Palpable Purpura** in pressure-dependent areas
- Dx: Clinical
  - No thrombocytopenia, normal PT/PTT
  - Skin bx: leukocytoclastic vasculitis with IgA deposition in the vessel walls
- Self-limiting illness
  - CKD and HTN observed up to 10 years

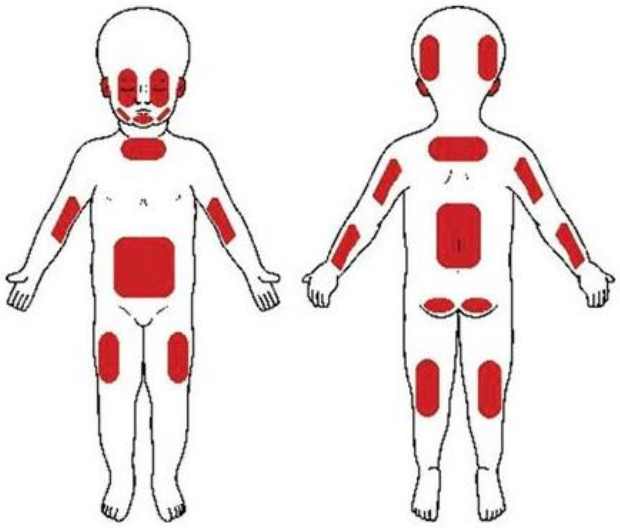


Trauma

- Bruise: bleeding into the dermis or subcutaneous tissue
- Accidental bruises over bony prominences (foreheads, knees, shins, and elbows)
- NAT
  - “Those who don’t cruise, don’t bruise” (exception: walkers)
  - Bruises over the upper arms, trunk, upper anterior legs, sides of face, ears and neck, flanks, genitalia, and buttocks
  - Shape of an instrument (belts, extension cords, human hand)
  - Petechiae in eye or mouth in suffocation (i.e. SI via hanging)

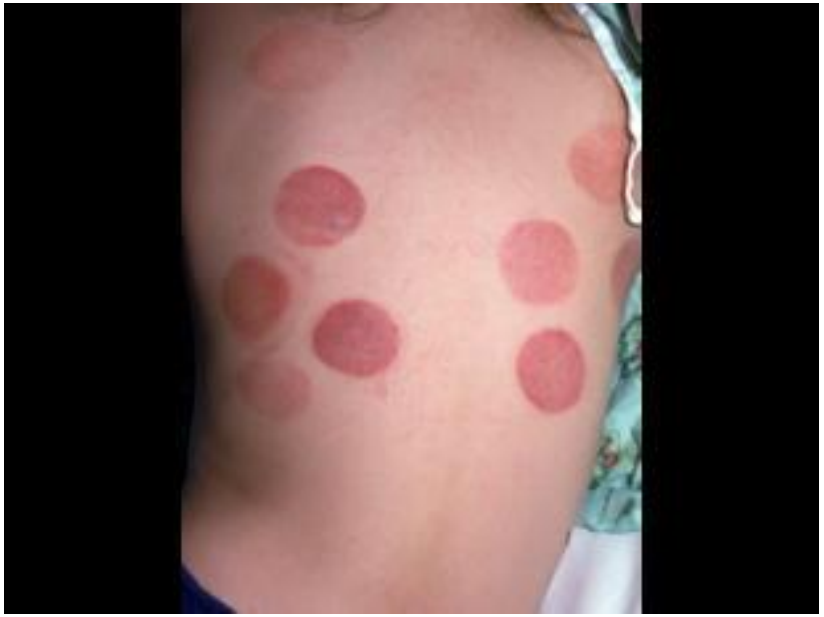


Accidental bruising pattern

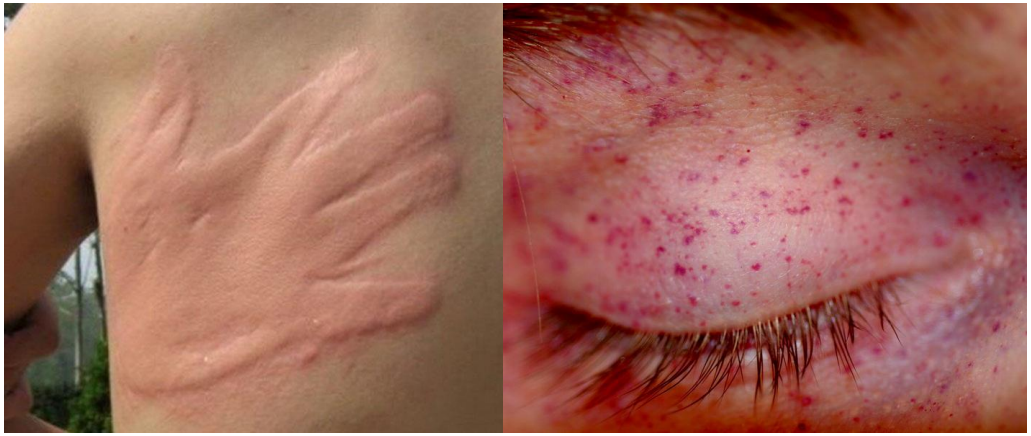


Abusive bruising pattern

Trauma



- Infants and toddlers, disabilities at highest risk
- “Coining” and “cupping” (mistaken for NAT)
- Dx: whenever NAT concerned, need full workup
  - CBC (Hb, platelet count)
  - PT/PTT
  - Family history to screen for coagulation disorders
  - Others: (eg, bleeding time, coagulation factors)



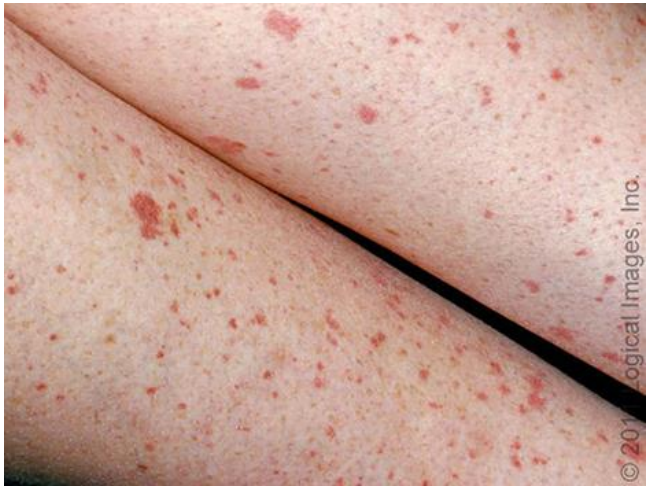
Immune Thrombocytopenia (ITP)

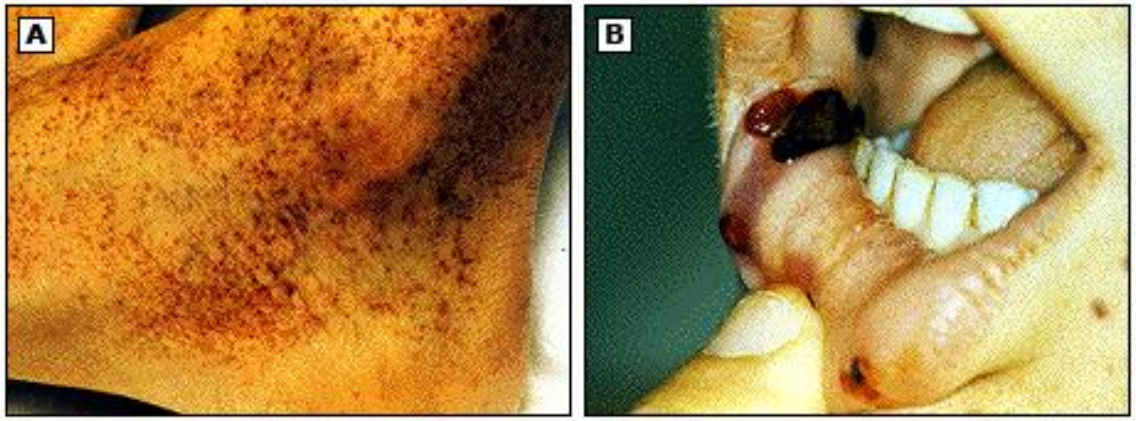
- Most common cause of isolated thrombocytopenia
  - Generally 2-5 yo
- Autoantibody (IgG) to surface of platelets resulting in destruction in spleen and liver
- 50% following viral infection
  - Some can follow live virus vaccine, i.e. MMR

- Diagnosis of exclusion:
  - Platelet count < 100k with no other cytopenias or abnormalities on peripheral blood smear
  - Absence of other clinical conditions

Immune Thrombocytopenia (ITP)

- Sudden onset widely spread petechiae/bruising over entire body, not-gravity dependent
- Mucocutaneous bleeding (petechiae, bruising, oral bleeding, epistaxis) usually < 20k





Immune Thrombocytopenia (ITP)

- Labs:
  - Peripheral blood smear (large and immature platelets)
  - Chem panel with LDH and Uric acid (Tumor Lysis)
  - DIC profile
  - Reticulocyte count
  - Direct Coombs (looks for associated hemolytic anemia)
  - Viral serologies: EBV, CMV, Parvovirus titers
  - Autoimmune etiologies (SLE, ALPS): ANA, dsDNA
  - Bone marrow not necessary with typical ITP features

Immune Thrombocytopenia (ITP)

- Usually short-lived (< 6 mo) without treatment
  - > 6 months is Chronic ITP, consider global immune problems
  - Severe complications (intracranial hemorrhage) in 0.1-0.5%

- Treatment (based on symptoms):
  - Observation
  - Corticosteroids (oral)
  - IVIG (fast 24-72 hours)
  - Anti-D immunoglobulin (WinRho)
  - Avoid NSAIDs
  - Platelets only if life threatening bleed