Emergency Department and Hospital Management of Pit Viper Snakebite
Includes: Rattlesnakes, Copperheads, and Cottonmouths (Water Moccasins)

When to Call a Physician-Expert

Direct consultation with a physician-expert is recommended in certain high-risk clinical situations:
- Life-threatening envenomation
- Shock
- Severe active bleeding
- Facial or airway swelling
- Hard to control envenomation
- Envenomation that requires more than 2 doses of antivenom for initial control
- Recurrence or delayed-onset of venom effects
- Worsening swelling or abnormal labs (protime, fibrinogen, platelets, or hemoglobin) on follow-up visits
- Allergic reactions to antivenom
- If transfusion is considered
- Uncommon clinical situations
- Bites to the head and neck
- Rhabdomyolysis
- Suspected compartment syndrome
- Venom-induced hives and angioedema
- Complicated wound issues
- If no local expert is available, a physician-expert can be reached through a certified poison center (1-800-222-1222) or the antivenom manufacturer’s line (1-877-377-3784).

Notes:
- All treatment recommendations in this algorithm refer to crotalidae polyvalent immune Fab (ovine) (CroFab®).
- This worksheet represents general advice from a panel of US snakebite experts convened in May, 2010. No algorithm can anticipate all clinical situations. Other valid approaches exist, and deviations from this worksheet based on individual patient needs, local resources, local treatment guidelines, and patient preferences are expected. This document is not intended to represent a standard of care. For more information, please see the accompanying manuscript, available at www.biomedcentral.com.

Check for Signs of Envenomation

- Swelling, tenderness, redness, ecchymosis, or blebs at the bite site, or
- Elevated protime, decreased fibrinogen or platelets, or
- Systemic signs, such as hypotension, bleeding beyond the puncture site, refractory vomiting, diarrhea, angioedema, neurotoxicity

Check for Indications for Antivenom

- Swelling that is more than minimal and that is progressing, or
- Elevated protime, decreased fibrinogen or platelets, or
- Any systemic signs

Administer Antivenom

- Establish IV access and give IV fluids
- Pediatric antivenom dose = adult dose
- Mix 4-6 vials of crotaline Fab antivenom (CroFab®) in 250 ml NS and infuse IV over 1 hour
  - For patients in shock or with serious active bleeding
    - Call physician expert (see box 12)
  - For suspected adverse reaction: hold infusion, treat accordingly, and call physician-expert.
- Re-examine patient for treatment response within 1 hour of completion of antivenom infusion

Determine if Initial Control of Envenomation has been Achieved

- Swelling and tenderness not progressing
- Protime, fibrinogen, and platelets normal or clearly improving
- Clinically stable (not hypotensive, etc.)
- Neurotoxicity resolved or clearly improving

Monitor Patient

- Perform serial examinations
- Maintenance antivenom therapy may be indicated
- Read Box 13 (Maintenance Antivenom Therapy)
- Observe patient 18-24 hours after initial control for progression of any venom effect
- Follow-up labs 6-12 hours after initial control and prior to discharge
- If patient develops new or worsening signs of envenomation, administer additional antivenom per box 4

Determine if Patient Meets Discharge Criteria

- No progression of any venom effect during the specified observation period
- No unfavorable laboratory trends in protime, fibrinogen, or platelets

Treatments to Avoid in Pit Viper Snakebite

- Cutting and/or suctioning of the wound
- NSAIDs
- Prophylactic antibiotics
- Prophylactic fasciotomy
- Routine use of blood products
- Shock therapy (electricity)
- Steroids (except for allergic phenomena)
- Tourniquets