EmergencyKT: Envenomation by Non-native Snake Species

Assess
ABC's
Oxygen
Cardiac monitor
Be prepared to support respiratory and cardiovascular systems (i.e. intubation, IVF, pressors)

Start 2 IV's
Patient NPO
Update Tetanus
Calm patient
Immobilize bite site
Administer IV analgesics

Determine:
Time since bite
Location and number of bites
Species of snake

Obtain Toxicology Consult

Call herpetologist at Cincinnati Zoo for help with identification

Species Identified?

Classify as Elapid, Viper or Crotalid and consult appropriate guideline

Common Exotic Elapids
- Cobras
  (King, Monocled, Egyptian, Spitting)
- Mambas
  (Black, Green, Jameson’s)
- Coral Snakes
- Kraits

Common Exotic Vipers
- Eyelash viper
- Speckled Forest viper
- Gaboon viper
- Rhinoceros viper
- Puff adder
- Bushmaster
- Fer-de-Lance

North American Crotalids
- Rattlesnakes
- Copperheads
- Water Moccasin (Cottonmouth)
EmergencyKT: Exotic Viper Envenomation

Clinical Assessment

Local
- Fang marks
- Ecchymosis
- Severe pain
- Lymphadenitis
- Erythema
- Pulses
- Edema
- Capillary refill

Mark 2 proximal locations to measure circumference in order to monitor progression

Systemic
- Nausea
- Vomiting
- Diarrhea
- Headache
- Abdominal pain
- Epistaxis
- Gingival bleeding
- Bulbar palsy
- Dysarthria
- Diaphoresis

Generalized weakness

Local Effects?
- Yes → Urgent Surgical Consult
- No

Laboratory Assessment

CBC with smear
WBCT
PT/INR
aPTT
Fibrinogen
D-dimers
CK
Fibrin degradation products
Myoglobin
Renal Panel
Liver Function
Blood type and screen
U/A
Stool Occult examination
EKG
CXR if age over 40
Underlying Cardiopulmonary disease
CT head noncontrast if presentation suggest hemorrhage

Consider

Abnormalities?
- Yes → Antivenin: Indications, Selection, Dosing, Concerns
- No → Observe at least 6-8 hours and update tetanus as needed

Antivenin

Indications, Selection, Dosing, Concerns

- Yes → ICU Admission for further antivenin treatment and repeat laboratory evaluation
- No

Abnormalities?
- Yes → Perform follow-up labs
- No → Discharge home with follow-up within 24-48 hours to repeat labs

Suspicion of Compartment Syndrome
- Document compartment pressure
- Redo antivenin
- If elevated compartmental pressures remain greater than or equal to 30mmHG despite appropriate antivenin, obtain urgent surgical consult

Systemic Effects
- Shock
- Coagulopathy
- Cardiac
- Respiratory
- Renal
- Neurological

Local Effects
- Necrosis
- Myonecrosis
- Bullae
History
Pain     Numbness      Nausea/vomiting      Diaphoresis      Paresthesias      diplopia      perioral tingling
History of severe allergic reactions or atopic conditions (asthma, urticaria, allergies)

Physical
Edema     Bleeding      Bullae or necrosis at bite site-(King Cobra)     Focus on cardiorespiratory
Thorough neurologic exam (elapid venom extremely neurotoxic – monitor for intracerebral hemorrhage
and/or respiratory paralysis)

Wound Eval
After Adequate Antivenom:
Necrosis, bullae, decreased sensation/pulses, Compartment pressures >30mmHg ?

Yes
Urgent Surgical Consultation

No

Studies
CBC      Renal     Urinalysis     PT/INR     PTT Fibrinogen D-Dimer
Type and Cross 4 units PRBC’s ECG

Initial Intervention
Irrigate, cleanse bite and apply pressure bandage
(do not incise, apply suction or ice to bite site)

Appropriate antivenom available?

Yes

No

Admit to ICU

Administer Antivenom to ALL Elapid Bites!
Patients may be asymptomatic at initial presentation but can rapidly progress to significant neurotoxicity and respiratory failure

Coagulopathy
Recheck CBC, Coags, U/A (myoglobinuria) q4 hrs Replace PRBC, FFP, platelets prn
(may have no effect until adequate antivenom is administered)

Hemodynamics
Continuous monitoring, may require ventilatory support, PA catheter, crystalloid vs. colloids, pressors, dialysis

Call herpetologist at Cincinnati Zoo
Jim Harrison at Kentucky Reptile Institute – 606-663-9160 or
Arizona Poison Center - 602-626-6016