

PATIENT CARE THEORY 2

UNIT 10, PART 4: Stings & Bites

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Bites and Stings

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<http://www.templejc.edu/dept/ems/Pages/PowerPoint.html>

Modified by: Rob Theriault, 2006

Marilyn Niffin, 2020

Bites and Stings

❖ Arthropods

- Insects
- Spiders
- Scorpions

❖ Reptiles

- Pit Vipers
- Coral Snakes

Bite & Sting Deaths

- ❖ 50% insects
- ❖ 30% snakes
- ❖ 14% spiders
- ❖ 6% other

Hymenoptera

- ❖ Bees, wasps, hornets, yellow-jackets, ants
- ❖ About 25 deaths/year
 - Honeybees 50%
 - Yellow-jackets, other wasps 50%
- ❖ Problems
 - Allergic reactions
 - Anaphylaxis
 - Toxic venom effects (rare)



Local Reactions

- ❖ Sharp, burning pain
- ❖ Itching
- ❖ Edema
 - Extensive reactions may involve entire extremity
 - Tongue/throat stings may cause airway loss

Systemic Reactions

❖ Mild

- Diffuse itching
- Urticaria
- Swelling distant from sting site
- Flushing

Systemic Reactions

❖ Severe

- Laryngeal edema, upper airway obstruction
- Severe bronchospasm, difficulty breathing
- Profound hypotension



Anaphylaxis

Anaphylaxis Management

- ❖ Remove stinger (scrape)
 - tongue depressor or credit card
- ❖ Manage airway
- ❖ Oxygen, assist ventilations
- ❖ Shock position
- ❖ Epinephrine prn 0.01 mg/kg
- ❖ Consider ACP back-up

Epi

❖ Actions

- bronchodilation
- vasoconstriction
- increases systemic vascular resistance → BP

Spiders

- ❖ About 1400 species are known from Canada
- ❖ 2 species of tarantulas
- ❖ 2 species of black widows from Ontario, Alberta and British Columbia.
- ❖ Thirteen species of spiders occur on ELLESMERE ISLAND, the northernmost point in Canada.
- ❖ 15 species produce symptoms
- ❖ Only two are dangerous
 - Brown recluse (*Loxosceles reclusa*)
 - Black widow (*Latrodectus mactans*)



Spiders

- ❖ Many venomous spiders come to Canada by hitching rides on bananas and shoes coming in from Latin American countries
 - e.g. poisonous brown recluse
- ❖ spiders rarely bite humans
 - unless accidentally trapped against the skin or grasped, although some species actively guard their egg sacs or young
- ❖ Symptoms usually mild: slight swelling, inflammation, or itching sensation



Brown Recluse

- ❖ Fiddle-back spider
- ❖ Shy, nocturnal
- ❖ Dark closets, basements
- ❖ On floors, behind furniture in houses
- ❖ Bites often occur when the spider is trapped in shoes or clothing, rolled on while in bed, and encountered when cleaning storage areas



Brown Recluse

❖ Local signs/symptoms

- No pain or only mild stinging
- Within 2 hours: Local pain, blue-gray halo
- 12 to 18 hours: Bleb formation, growing ischemic zone
- 5 to 7 days: Aseptic necrosis, necrotic ulcer
- Severe lesions up to 30 cm in diameter





Brown Recluse

❖ Systemic signs, symptoms

➤ Mild

- Fever, chills
- Malaise
- Nausea, vomiting
- Joint pain

— Severe

- Bleeding disorders
- Renal failure
- Convulsions
- Heart failure
- Death

Brown Recluse

❖ Prehospital management

- Local cold application
- Wound cleansing
- Padded splint, bulky dressing

Black Widow

- ❖ Seen in Irregular webs in wood piles, trash dumps, outdoor structures (outhouses), under rocks
- ❖ Occasionally in houses
- ❖ Females rarely leave web
- ❖ Only females bite humans



Black Widow

- ❖ Neurotoxic
- ❖ Immediate sharp, stinging pain
- ❖ Muscle cramps in 15 minutes to 2 hours
 - Upper extremity: pleuritic chest pain
 - Lower extremity/genitalia: abdominal pain, rigidity

Black Widow

- ❖ Muscle twitching, weakness, paralysis, drooping eyelids
- ❖ Sweating, tearing, salivation, increased bronchial secretions
- ❖ Anxiety, headache, restlessness, dizziness, nausea, vomiting, hypertension
- ❖ Edema, skin rash, conjunctivitis, itching
- ❖ Shock, respiratory depression

Black Widow

- ❖ Symptoms peak in few hours, diminish
 - Usually last < 24 hours
 - Some symptomatic up to 4 days
- ❖ Mortality rate unknown
- ❖ Most recover completely

Black Widow

❖ Treatment

- Local cold application
- Symptomatic care
- Antivenin available

Scorpions

- ❖ 40 U.S. species
- ❖ Only one potentially lethal (*Centuroides sculpturatus*)
 - Some scorpions native to Alberta



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Scorpions

- ❖ Local signs, symptoms
 - +/- local swelling, inflammation
 - Local severe sharp pain, hypersensitivity



Scorpions

❖ Systemic signs, symptoms

- Extreme restlessness, agitation
- Roving eye movements
- Poor coordination, slurred speech, difficulty swallowing
- Salivation, wheezing, stridor
- Tachycardia, tachypnea, hypertension, nausea, vomiting

Scorpions

❖ Treatment

- Supportive care
- Wash area with soap and water
- Antivenin available

Snakes

- ❖ In one year, worldwide, an estimated 300,000 people are bitten by snakes (Roberts, 1987).
- ❖ number of deaths per annum attributed to snake bite is estimated at 50,000-100,000 ("Deadly viper," 2000).
- ❖ Bites are rare in Canada

Venomous Snakes

- ❖ Pit vipers (Crotalidae)
 - Rattlesnakes
 - Copperheads
 - Water moccasins (cotton mouth)
- ❖ Coral snakes (Elapidae)

Ontario Snakes

- ❖ 17 species - only one is venomous
- ❖ Often confused for other species (similar markings)
 - Milksnake
 - Foxsnake
 - Hognose snake
 - Water snake

- ❖ <http://www.ontariopoisoncentre.ca/common-poisons/poisonous-snakes/poisonous-snakes.aspx>

Massasauga Rattlesnake



- ❖ Part of the viper family
- ❖ Ontario's only venomous snake
- ❖ often seen near dwellings, campgrounds and hiking trails
- ❖ they're shy and docile
- ❖ usually not seen because they spend most of their time hiding beneath shrubs, ferns and slabs of rock
- ❖ occasionally found sunning themselves on rocks
- ❖ 1 of 3 in the pit viper family found in Canada

Pit Vipers

- ❖ Heavy bodies
- ❖ Diamond-shaped heads
- ❖ Vertical, elliptical pupil
- ❖ Heat sensing pit on upper lip between eye. nostril
- ❖ Erectile fangs
- ❖ Hemotoxic, necrotoxic venom



Pit Vipers

❖ Rattlesnakes

- U.S. stats
- 13 Species
- 7,000 bites/year
- 9 to 10 fatalities
- Most deaths from western diamondback, eastern diamondback



Pit Vipers

❖ Copperhead

- Deaths VERY rare
- Minimal edema, pain



Pit Vipers

- ❖ Water moccasin
 - Average of one death a year
 - Mild systemic symptoms
 - Potential for severe local tissue injury, necrosis



Pit Viper Bites

- ❖ Pain, swelling
- ❖ Progressive edema
- ❖ Bruising
- ❖ Blood-filled vesicles



Pit Viper Bites

- ❖ Weakness, sweating, nausea, vomiting
- ❖ Tachycardia, hypotension, shock
- ❖ Prolonged clotting
- ❖ Bleeding gums
- ❖ Hematemesis, melena, hematuria
- ❖ Numbness, tingling, neurological symptoms

Coral Snake

- ❖ Thin-bodied
- ❖ Small, rounded head
- ❖ Brightly colored
- ❖ Small, non-erectile fangs
- ❖ Injects venom by chewing
- ❖ Venom mostly neurotoxic



Red on yellow, kill a fellow.
Red on black, venom lack.

Coral Snake Bite

- ❖ Little, no pain/swelling
- ❖ Tingling around bite
- ❖ Muscular incoordination
- ❖ Weakness
- | Increased salivation
- | Difficulty swallowing, talking
- | Visual disturbances
- | Respiratory distress, failure
- | Shock

Most deaths occur from respiratory arrest within 36 hours

Venom Effects - General

- ❖ various physiological effects on humans
- ❖ tissue destruction
 - pain
- ❖ interference with blood clotting
 - profuse bleeding
- ❖ neurological effects
- ❖ cardiac arrest
- ❖ respiratory failure
- ❖ Effects can be long-term and irreversible and can terminate in death

Venom Effects - General

- ❖ there has not been a recorded death in Canada for many years (over 50)
- ❖ Only 2 people have died in eastern Canada from a rattlesnake bite – neither received proper treatment
- ❖ The Massasauga Rattlesnake was listed as threatened when the *Endangered Species Act* took effect in 2008. On June 27, 2014, the population was split into two, with the Great Lakes – St. Lawrence population listed as threatened, and the Carolinian population listed as endangered.

<https://www.ontario.ca/page/massasauga-rattlesnake>

Snakebite Management

- ❖ Calm victim
- ❖ Oxygen
- ❖ Clean, bandage wound
- ❖ Immobilize bitten area, keep dependent
- ❖ Caution with constricting bands, bandages, splints carefully for edema
- ❖ Avoid having the patient move/walk (this will increase blood flow (venom) throughout the body)
- ❖ Transport

Snakebite Management

❖ What **NOT** to do

- Do not apply a tourniquet or anything tight.
- Do not apply ice.
- Do not cut or suck on the bite area.
- Do not try to catch or kill the snake.
- Do not take any pain medicine containing aspirin or ibuprofen.



QUESTIONS?