

SPIDERS OF BC:

- All spiders can bite and most have venom
- Medically important in North America
 - Black widow (*Lactrodectus*)
 - Brown recluse (*Loxasceles reclusa*)
 - Other necrotic spiders?
- Local infections, cellulitis, bug bites, etc are often blamed on spiders

BLACK WIDOW: *Lactrodectus* venom

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| INFO | <ul style="list-style-type: none"> • Endemic to BC's dry areas including Vancouver Island |
| BITE | <ul style="list-style-type: none"> • Sharp, pinprick sensation → dull, aching local pain • Severe envenomations can result in intense pain, severe muscle cramping • Anxiety, agitation, ↑ HR and BP, headache |
| VENOM | <ul style="list-style-type: none"> • Primary neurotoxin is alpha-latrotoxin • Causes presynaptic influx of calcium and sodium → release of acetylcholine and other NTs in central and peripheral nervous systems |
| TXT | <ul style="list-style-type: none"> • <u>Mild sx:</u> local wound care, ice packs, tetanus • <u>Mod pain:</u> NSAIDs, opioids, BDZ for anxiety & adjunct • <u>Severe pain, cramping, HTN:</u> black widow spider antivenin <ul style="list-style-type: none"> ◦ Rapidly reverses symptoms ◦ Dose: 1 vial for adults or children ◦ Can see allergic rxns (horse serum in origin) |

BROWN RECLUSE: *Loxasceles* venom

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| INFO | <ul style="list-style-type: none"> • Endemic to south-central US (not in Canada) • Reputation for causing necrotic lesions <ul style="list-style-type: none"> ◦ Confirmed diagnosis are rare ◦ Should investigate other causes |
| BITE | <ul style="list-style-type: none"> • Little to no local pain • Local blanching, redness, bleb typically heals • Can form necrotic ulcer, taking weeks to heal |
| VENOM | <ul style="list-style-type: none"> • Mixture proteins, enzymes, peptides <ul style="list-style-type: none"> ◦ Hyaluronidase helps spread venom ◦ Sphingomyelinase D • Cell membrane damage, hemolysis, and platelet aggregation → thrombosis of small capillaries • Necrosis from subsequent ischemia & inflammation • May also cause systemic hemolysis |
| TXT | <ul style="list-style-type: none"> • Local of necrotic bites • Local wound care • Symptomatic/supportive care • In non-healing lesions: investigate other causes <ul style="list-style-type: none"> ◦ Infections, cancer |

TARANTULA:

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| INFO | <ul style="list-style-type: none"> • Popular as a pet; pet store varieties are less venomous |
| MOA | <ul style="list-style-type: none"> • Irritating hairs - primary defense mechanism <ul style="list-style-type: none"> ◦ 4 types of hairs – classified by length & type of barb ◦ Can penetrate skin and ocular surface ◦ Mechanical irritation |
| S/S | <ul style="list-style-type: none"> • Ocular symptoms can range <ul style="list-style-type: none"> ◦ Mild foreign body sensation and redness to iritis with decreased visual acuity ◦ Can see intraocular migration of conjunctival hairs and chorioretinal lesions |
| EYE TXT | <ul style="list-style-type: none"> • Dissection of cornea and sclera NOT RECOMMENDED • May take up to 12 months for encapsulation or disintegration of microcilia • Maintain on low dose topical steroids depending on corneal and conjunctival inflammatory reaction • Monthly follow-up |

CATERPILLARS:

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| INFO: | <ul style="list-style-type: none"> • Several local varieties • Some cause local reaction after direct contact • Some secrete venoms from base of hairs |
| SX | <ul style="list-style-type: none"> • Immediate irritation or pain • Varying degrees of erythema, edema, vesicles • Ocular exposure to hairs can cause conjunctivitis, keratitis |
| TXT | <ul style="list-style-type: none"> • Symptomatic, supportive, healthcare facility if worsens • Administer popsicle or ice cream • Consider oral antihistamine • Removing hairs rarely effective • Follow-up for lack of resolution of sx or increased drooling, swelling, distress |

FROGS & TOADS IN BC:

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| LOCAL TREE FROGS, TOADS, SOME SLUGS | | |
| IRRITANTS | <ul style="list-style-type: none"> • Skin & parotid gland secretions / slime • No systemic toxicity <ul style="list-style-type: none"> ◦ Rough-skinned newt can contain tetrodotoxin | |
| S/S | <ul style="list-style-type: none"> • Can make fingers tingle, irritating to eyes • S/S generally resolve within 1-2 hours | |
| NON-LOCAL VARIETIES: can be more toxic | | |
| TOADS (<i>Bufo spp.</i>) | <ul style="list-style-type: none"> • Cardioactive toxins • Indolealkylamines | <ul style="list-style-type: none"> • Digitalis-like poisoning • Hallucinogenic • Sold as aphrodisiac but causes cardiotoxicity |
| FROGS : skin of some frogs & newts | <ul style="list-style-type: none"> • Tetrodotoxin (neurotoxin) • Batrachotoxin (neuro- and cardio-toxin) | <ul style="list-style-type: none"> • Puffer fish • Blue-ringed octopus • Poison dart frog |

SNAKES IN BC:

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| RATTLESNAKES IN BC: | | |
| INFO | <ul style="list-style-type: none"> • <u>Indigenous:</u> Okanagan & South Okanagan • <u>Captive:</u> aquariums, nature parks, underground zoos | |
| S/S | LOCAL | <ul style="list-style-type: none"> • 25% bites are dry bites • 30 mins to several hours • Pain, erythema, edema, ecchymosis |
| | SYSTEMIC | <ul style="list-style-type: none"> • Within 12 hours • N/V, perioral paresthesia, tingling of fingertips and toes, lethargy • ↓ BP ↑ HR, resp distress, altered senses |
| | COAGUL-APHTATIES | <ul style="list-style-type: none"> • Mildly abnormal with no bleeding → markedly abnormal with bleeding and severe thrombocytopenia (<20,000) |
| ER | <ul style="list-style-type: none"> • ABCs • Rapid, detailed history <ul style="list-style-type: none"> ◦ Time of bite ◦ Description of snake ◦ First aid measures used ◦ Coexisting medical conditions ◦ Drug & food allergies ◦ Hx of previous snakebite and therapy | |
| ASSESS AND MONITOR | LOCAL | <ul style="list-style-type: none"> • Puncture, pain, edema, ecchymosis • Mark & measure leading edge q15 min until progression has stopped |
| | SYSTEMIC | <ul style="list-style-type: none"> • BP, sweating, chills, N/V, paresthesias • Until resolution |
| | COAG EFFECTS | <ul style="list-style-type: none"> • CBC, INR, platelets, fibrinogen • Repeat q4h until normal |
| ANTI- VENIN | Continued.... | |

SNAKES OF BC (CONTINUED):

RATTLESNAKES IN BC:

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| ANTI- VENIN | NOT INDICATED | <ul style="list-style-type: none"> Patients with only fang marks and no local swelling, hemorrhage, paresthesias, abnormal labs, or systemic sx Monitor for 8-12 hrs after bite |
| | INDICATED | <ul style="list-style-type: none"> Signs of progressive envenomation Worsening local injury, coagulation abnormality, systemic S/S |
| CROFAB | INITIAL DOSE | <ul style="list-style-type: none"> Skin testing not required Initial dose 4-6 vials <ul style="list-style-type: none"> 6-12 vials may achieve initial control more rapidly if severe toxicity Observe for up to 1 hour <ul style="list-style-type: none"> If endpoint for initial control is not reached, repeat 4-6 vials q1h until initial control achieved |
| | "INITIAL CONTROL" | <ul style="list-style-type: none"> Complete arrest of <i>progression</i> of local S/S Clear improvement in: <ul style="list-style-type: none"> Coagulation studies Systemic S/S |
| | MAINTAIN- ANCE | <ul style="list-style-type: none"> After initial control is achieved, administer 2 vials q6h x 3 doses (6 doses over 18 hr) |
| | FURTHER DOSES | <ul style="list-style-type: none"> Usually unnecessary unless pt has recurrent local effects or recurrent or late-onset coagulopathy Recurrent coagulopathy may not respond to additional doses |

EXOTIC SNAKES:

- Illegally housed and sold snakes (cobras, mambas, vipers)
- Travelers returning home
- RCMP entering homes, labs, etc
- Venom varies
- Antivenin for exotic snake bites not available in BC
 - Contact DPIC and we can help procure

WESTERN TERRESTRIAL GARTER SNAKE:

- Common snake in lower mainland and island
- Found often near water – prefers wooded or grassy areas near water or tidepools to feed on small fish
- Stripe color is white, yellow, or orange (never red)
 - Common garter snake has red stripe
- Harmless, can grow to 36 inches
- Treatment of bites = wound care and tetanus
- NOTE: baby rattlers may be mistaken for garter snakes
 - If bite occurs in area of BC indigenous to rattlesnakes, a longer observation period for an asymptomatic pt should be considered

URCHINS:

- Local sea urchins are not venomous
- Most injuries are from stepping on spines
- Spines break off causing local reactions
- Treatment: clean, debride prn, antibiotics prn

STINGRAYS:

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| INJURY | <ul style="list-style-type: none"> Often occurs when wading in surf and step on stingray Stingray thrusts tail upward, driving spine into foot/leg Integumentary sheath surrounding spine ruptures Venom escapes into local tissues → immediate severe pain Syncope, weakness, nausea, anxiety may be seen |
| WOUND | <ul style="list-style-type: none"> Jagged, bleeds freely, contaminated with sheath Swelling and edema may be present |
| TXT | <ul style="list-style-type: none"> Submersion in hot water will inactivate venom and ↓ pain Analgesics may be required Clean wound, debride and remove sheath Xray may be needed to detect deeply embedded fragments Antibiotics often required |

BC ROCKFISH:

- Local pain, swelling, throbbing
- Systemic effects unlikely
- Immerse extremity in hot water
- Wound care

JELLYFISH:

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| INFO | <ul style="list-style-type: none"> Of the 9000 species, 100 are toxic to humans Most common worldwide = <i>Pelagia noctiluca</i> (purple jelly) <u>Most painful in American & Canadian coastal waters</u> = Portuguese-man-of-war and sea nettle (not in Howe sound) <u>Sudden death reported:</u> <ul style="list-style-type: none"> Sea wasps - Pacific box jellyfish (N. Australia, SE Asia) Gulf of Mexico Portuguese-man-of-war |
| LOCAL | <ul style="list-style-type: none"> <u>Lion's mane:</u> unpleasant sting for ~ 2 hours <u>Moon jelly/water jelly:</u> mild to no sting Nematocyst (highly developed stinging apparatus) can penetrate human skin |
| S/S | <ul style="list-style-type: none"> Toxic reactions are usually limited to local reactions <ul style="list-style-type: none"> Pain and stinging at areas of contact Sx duration from minutes to hours Later can become vesicular, hemorrhagic Systemic effects (rare with local jellyfish) <ul style="list-style-type: none"> Weakness, nausea, headache, muscle pain & spasm |
| TXT | <ul style="list-style-type: none"> Apply hot water to area NOT: alcohol, vinegar (useful for box jellies in tropics), urine Remove tentacles with a gloved hand Treat pain with analgesics |

SUMMARY: most species of land and sea critters in BC are:

- Relatively harmless and shy
- Cause minimal toxicity
- Treatment is primarily
 - Symptomatic and supportive
 - Good wound care
 - Tetanus up to date
- Antivenin available for:
 - Rattlesnakes
 - Black widow spiders