Rattlesnakes

A venomous snake is one that secretes a toxic substance that immobilizes and kills it prey. Rattlesnakes fall into this category and can be particularly deadly to dogs as well as cats that have access outdoors. Snake venom is highly complicated, at least 26 separate enzymes have been identified; of those about 10 enzymes are common to all snake venoms. All snake bites are not equal. The quality of venom depends not only on the type of snake but also the season, geographical region, the age of the snake (young snakes are particularly dangerous), and if it recently expelled venom.

CALIFORNIA RATTLESNAKES

The physical appearance of each snake species is variable and it is difficult to identify which species of snake one may be looking at. There are some basic characteristics in distinguishing poisonous snakes:

- Broad triangular head with a noticeable "neck " behind the head
- Vertical pupils (non poisonous snakes have round pupils) … please don't get close enough to observe this.
- The Crotalines are also called pit vipers because they have heat sensing pits on their faces between the eye and nostril-this helps them locate prey.

LOCATION AND SEASON

Rattlesnakes can be found in rural and suburban areas where there is sufficient natural habitat. In Northern California snakes will hibernate during cold months and are active March through September. In southern California they are active year round. In general, snakes want to be left alone. But along comes an inquisitive dog probing every mysterious hole in the ground, sniffing under downed logs, slogging along the riverbank, and digging up leafy patches on the forest floor... and a lightning strike of the serpentine kind may be the result! This year, CARE Hospital, Santa Barbara's 24 Hour Emergency Hospital has already treated 4 dogs for snake bites.

DOGS vs. SNAKES

Dogs encounter snakes during play or work outside. Most bites occur on the face or extremities. Venoms are of two types, either neurotoxic (affecting the nervous system) or hemotoxic (affecting the blood and vessels). The venom of many snakes contains both components. The hemotoxic venom exerts its effect by disrupting the integrity of blood vessels. As a consequence swelling occurs and it can be dramatic with up to 1/3 of total blood circulation being into the tissues in a matter of hours. It also disrupts normal blood clotting mechanism and this can lead to uncontrolled blood loss. For dogs, a bite can be life-threatening although the severity depends on the health of the dog, the amount of venom injected (some bites are "dry") and what part of the dog is bitten. Bites in areas like the face and mouth, which are rich in blood vessels, are the worst. Unfortunately, dogs explore with their noses, so bites are usually inflicted on their faces. Dogs that have been bitten need to be taken to a veterinarian that has antivenin as soon as possible -- but don't make your dog run, because that will help the venom circulate and make things worse. Decrease your pet's mobility as much as possible, including carrying them if you can. Pets are treated with the same antivenin that's used in people. Call ahead to the veterinarian and make sure they have anti venin and/or get to the closest hospital that stocks antivenin. CARE Hospital in Santa Barbara maintains a year round supply of antivenin.

SEVERITY OF SNAKEBITES DEPENDS ON:

- The age and species of the snake
- The size, age, and health of the dog
- The intensity, depth of fang penetration, and location of the bite (more vascular areas like the face and mouth are the worst)
- The amount of venom injected-approximately 20-25% of bites are dry, meaning no venom has been injected, 30% are moderate in that they cause local pain and swelling in the bite area. 40% of bites are severe with about 5% being fatal.

WHAT DOES VENOM DO?

Venomous snakebites cause severe pain, swelling, nausea, bleeding at the site, weakness, numbness, cell death, numbness, diminished function and, occasionally, loss of a limb and sometimes death. Changes in the blood pressure and heart rate are common. Other symptoms include excessive salivation, thirst, muscle spasms, and unconsciousness. Snake venoms inflict local effects such as inflammation, damage to the blood vessel lining, clotting defects and localized tissue destruction. Some venom can also cause neurotoxicity and interfere with nerve transmission - resulting in paralysis.

PREVENTION

The most important thing to keep in mind is to be aware that you and your dog share habitat and space with these creatures. If you do hike or recreate with your dog in known rattlesnake habitat locations, please keep him/her on a leash at all times. These snakes can also inadvertently wander into backyards and gardens hunting for food. Baby snakes can be just as lethal as the adults.

PREVENTING SNAKE BITES

- While out walking, controlling your dog with a leash is your safest bet
- Always hike or camp with a buddy who will be able to go for help
- Always take a cell phone
- Do not allow your dog to explore holes in the ground or dig under logs, flat rocks or planks
- Stay on open paths where there is an opportunity for snakes to be visible
- Keep nighttime walks to a minimum; rattlers are nocturnal most of the year
- If you hear a rattlesnake, keep your dog at your side until you locate the snake; then move away
- Off-trail hiking with an unleashed dog may stir up a snake and you may be as likely a victim as your dog
- If your dog seems unusually curious about “something” hidden in the grass, back off immediately until you know what it is

WHAT TO DO IN THE EVENT OF SNAKEBITE TO YOUR DOG:

- Try to identify the snake by taking note of its size, color patterns and the presence or absence of a rattle at the end of the tail (if this isn’t possible without putting you and your dog in further harm – do NOT pursue further)
- Try to calm your dog as well as yourself.
- Look your dog over carefully for fang marks, noting that there may be more than one bite wound.
- Get to the nearest animal hospital while trying to keep the dog as quiet as possible (carrying them if you can).

WHAT NOT TO DO:

- Do NOT take out your pocketknife and cut Xs over the fang marks!
- Do NOT attempt to suck venom through those X marks.
- Do NOT grab the snake in a fit of anger and attempt to destroy it. You may be bitten yourself!
- Do NOT make your dog run as this will further spread the toxin.
- Do NOT pack the area in ice.
- Do NOT apply a tourniquet.

TREATMENT

The faster the bite is recognized, the more effective the treatment is. Since the most common mechanism of death from bites is associated with circulatory collapse, IV fluid support and monitoring blood pressure are very important. A minimum of 24 hours of observation is necessary post bite to anticipate and prevent complications associated with the bite. Patients are on IV fluid support constantly.

Provide Antivenin! Antivenin is a serum that is commercially produced to neutralize the effects of the injected venom. At special laboratories healthy horses are injected with increasing amounts of selected snake venom (non-fatal, of course), gradually challenging the horse to make more antibodies. To obtain these antibodies, a small amount of blood is later removed from the horse and the protein antibodies are separated out and purified. A specific antibody is produced for each type of snake. The antivenin is reconstituted into an intravenous drip that is run into the patient over a 2-4 hr period. The patient is monitored for reactions very closely during administration. Antivenin is expensive ($500-$800.00 a vial). A large dog with a severe bite or bites is likely to require several vials. Severe envenomations might require as many as 10 vials.

Other treatments including blood and plasma transfusions may be necessary if life threatening blood loss or circulatory volume is severely compromised. Antibiotics are necessary to prevent infections and medical therapy to control pain is vital.

SNAKE BITE KITS

Should dog owners carry antivenin kits with them routinely while outside with their dogs? Probably not says one expert. "An antivenin kit probably wouldn't be that practical because of expense, routes of administration and other important reasons." Most antivenin products are targeted for a particular species of snake and may have no effect on the snake that bites your dog. Antivenin does not have a long shelf life and due to expense, most animal hospitals do not keep a supply on hand.

Vigilance and keeping control of your dog when walking in areas inhabited by poisonous snakes will be your best deterrent to a snake encounter. It's not a bad idea to memorize your veterinarian's emergency phone number, too!

SNAKE BITE VACCINATION

Several years ago Red Rock Biologics released a vaccination against the venom of the Western Diamondback. It also potentially provides cross protection to six of the seven California species. Vaccination does NOT guarantee protection. A snakebite should always be treated as an emergency even in a vaccinated dog. The jury is still "out" in the veterinary community with regard to the efficacy of the vaccination.

RATTLESNAKE AVERSION TRAINING

Gina Gables provides an annual rattlesnake avoidance program that is a safe humane method to teach dogs to avoid rattlesnakes when they encounter them. The aversion training utilizes scent, sight and sound of rattlesnakes to teach dogs to stay clear. The training takes place in a controlled environment using a remote training collar. Rattlesnakes are defanged or muzzled to prevent injury. The web site to contact is MAnPAW.com (phone number 805-523-3432). Annual refresher training is recommended.

CONCLUSION

In is critically important that owners be aware of the risks of rattlesnake bites and what to do in the event of a bite. As humans expand their communities into more rural areas, the frequency of bites will undoubtedly increase. Be your dog's best advocate by being on the lookout and being prepared. In the event of a bite, get to a vet as soon as possible.