

Red-tailed Hawk

On May 2, 2004, an adult red-tailed hawk (*Buteo jamaicensis*) presented to the Tufts Wildlife Clinic from Lynn, MA after being found unable to fly. On initial examination, the bird was very dull, was breathing rapidly, and had a large bruise and puncture wound over the right elbow. The bird was anesthetized for radiographs of the wing to determine if any bones were broken. The radiographs showed no fractures, only a large area of soft tissue swelling around the elbow. The wound was cleansed thoroughly and a dressing was applied. Blood was collected for a complete blood count and the bird was given pain medications and antibiotics.

On day two of the bird's hospitalization, the elbow wound bandage was changed. The wound was still oozing blood from the day before, which concerned the veterinary staff. More blood was collected and analyzed at this time. In healthy animals, blood will clot in a short amount of time, but the blood from this hawk took a very long time to clot. Because this problem may be caused by ingestion of rat & mouse poisons, we made a presumptive diagnosis of secondary anticoagulant rodenticide toxicity and the bird was started on Vitamin K therapy.

Unfortunately, this scenario is commonly seen in birds of prey. Hawks and owls normally eat rodents. Many people buy commercial poisons in an attempt to control nuisance rodent populations around their houses, but don't realize that these poisons adversely affect many animals, including dogs, cats, hawks and even humans.

Many rodent poisons are anticoagulants. They work by blocking the actions of vitamin K, which is necessary for the production of clotting factors found in the blood. The animals that consume the poison will use up their clotting factors and are then unable to make more. They may initially be weakened from blood loss and will ultimately bleed to death. This not only happens to rats and mice, but also to any other animal that eats the poisons.

Hawks, owls and other predators don't eat the poisons directly. Such predators catch the rodents that are slowest or weakest and may easily consume animals that have died from rodenticides or other poisons (thus the terms secondary toxicity). Hawks cannot tell healthy from poisoned animals and will eat both live and dead rodents. One poisoned meal may not cause major effects in the hawk. But the poison is active for several weeks and, during that time, the hawk is likely to consume more rodents killed by the poison. The poison accumulates in the hawk, and the bird may bleed to death or become weakened from blood loss.

Birds suffering from secondary rodenticide toxicity often exhibit weakness, aren't interested in food, have difficulty breathing, bleeding and extensive bruising. Therapy is directed at supplementing the poisoned animals with vitamin K so that their bodies can produce blood-clotting factors. The anticoagulant poisons are long-acting so the therapy must be continued for several weeks. Some poisoned animals that have lost significant amounts of blood may even require blood transfusions.

Red-tailed Hawk received Vitamin K therapy every day for 4 weeks. After 4 weeks the therapy was discontinued and the bird was closely observed for any new bleeding. Another blood sample was collected and observed for clotting time. The sample clotted in a normal amount of time and the bird did not show any bruising or difficulty clotting from the blood collection site. The bird was released after 5 weeks of care.

Cases such as this one not only allow us to help individual animals and to teach our veterinary students, they help us understand some of the subtle and unintended effects that we have on the world around us. All chemicals used to kill rodents can have effects on other species. Each year pediatricians and emergency rooms treat many children who have eaten the poisoned baits. Veterinarians also treat many pet cats and dogs who ingest rodent poison or the dead rodents themselves. None of us want mice in our kitchens. But as this case shows, before we resort to poisons we should carefully make sure that we repair all the holes and cracks through which rodents can enter, use properly set killing traps (snap type mouse traps), or consult professional pest control personnel.