

When Pets Attack Wildlife—Part 1: What Can Happen

SHIRLEY CASEY¹ AND MACKENZIE GOLDTHWAIT, DVM²

¹WILDAGAIN WILDLIFE REHABILITATION, INC., EVERGREEN, COLORADO

²ANNIE'S ANIMAL CLINIC, HIGHLANDS RANCH, COLORADO

Abstract: Millions of wild animals are chased, captured, and harmed by domestic pets each year. This paper describes a variety of wild animal health problems that can be found after such pet attacks, whether directly related to the pet or related to conditions that may have occurred before or after the pet encounter.

Key words: cat bites, dog bites, cats and birds, pet attacks, antibiotic resistance, wildlife injuries, wildlife mortality, cats kill birds, crushing injuries by dogs, wildlife wounds

INTRODUCTION

Regardless of the debate about whether the number of wild animals annually killed by pets is 7 or 25 billion birds and mammals or what the best strategies to reduce these fatalities are, wildlife rehabilitators see direct evidence of pet attacks on wildlife when the creatures are admitted to rehabilitation facilities. Many wild animals are taken to rehabilitators after being attacked or 'brought home' by cats and dogs. While pet owners or guardians may proclaim and wish the wild creature is unharmed, and persist in this belief even if it was in the dog's or cat's mouth, many of these wild animals are injured and may die as a result of the pet's actions. Often the rescuer is unaware of the damage. Rehabilitators, veterinarians, and others discuss treating infections in wildlife resulting from exposure to bacteria in the pets' mouths. Infections,

however, actually are just one of many health problems that may result from pets' contact with wild animals. This paper describes some of these conditions.

Domestic cats chase, injure, and kill a variety of small prey species such as birds, mammals, snakes, and lizards (Figure 1). Cats and small dogs are more likely to chase, capture, and 'play with' wild animals smaller than three pounds (~1.5 kg). Larger dogs may chase, paw, bite, and otherwise harm both young and adult animal species of various sizes, including passerines, ducks and other waterfowl, turtles, snakes, squirrels, rabbits, raccoons, opossums, fox, deer, and elk. Pets may attack any vulnerable wild animal that is not mobile, fast, strong, or healthy enough to avoid capture, or not old enough to be wary of imminent danger or be able to escape. While pets may attack either young or adult wild animals, rehabilitators report more juvenile animals are admitted as a result of pet attacks, presumably because young can be found more easily by pets and often are unable to escape or defend themselves (Figure 2).

VARIETY OF PHYSICAL CONDITIONS

The following describes a variety of the possible health problems that wild animals may suffer after an encounter with a pet. While these problems may range from minor to severe, many may be painful and cause secondary problems, such as decreased mobility, inability to obtain food and water, and infection. Some of the conditions may cause the animal's death or prevent release to the wild, such as severed spines, lacerated organs, head trauma, fractured bones, and amputations, and not be related to infections that are so often the focus of treatment.

Wounds. Wounds are openings or breaks in the skin. Both cats and dogs can cause any of the wounds noted below in wildlife. Pet teeth and/or claws may cause wounds. Cats have four canine teeth, which are

Shirley J. Casey, co-founder of WildAgain Wildlife Rehabilitation in Evergreen, Colorado, has been a licensed rehabilitator since 1986. She conducts research on wildlife topics as well as publishes and presents around the country on a wide range of rehabilitation topics, as well as on www.wildagain.org.

Mackenzie Goldthwait, DVM, graduated from Tufts University School of Veterinary Medicine in 1989 with a special interest in wildlife medicine. She was the veterinarian at Cape Wildlife Center in Massachusetts for 18 months. She is a veterinarian in Highlands Ranch, Colorado, and works with wildlife as well as providing training for rehabilitators and veterinary students on wildlife health. Dr. Goldthwait is a Master Birder and serves on the Board of Directors for the Audubon Society of Greater Denver.



Figure 1. While pets may be gentle with caregivers, they harm many wild animals annually, such as this free-ranging domestic cat stalking birds. Photo by Shirley Casey, CO.

from 1/2 to 3/4 in (1.3–1.9 cm) in length and can penetrate deeper into prey during biting. Their claws effectively puncture and tear prey (Figure 3).

Dogs have four canine teeth, 1/2 to 1 in (1.3–2.5 cm) long, depending on breed and size, which can puncture, tear, and penetrate deeper than their



Figure 2. Young animals are especially vulnerable to pet attacks, such as this fledgling pine siskin (*Carduelis pinus*) on the ground shortly after leaving the nest and not able to fly yet. Photo by Shirley Casey, CO.

length when they bite. Dogs' teeth and jaws have evolved to capture, kill, and eat prey. The hundreds of pounds of pressure exerted by a dog's jaw easily and quickly can crush tissue and bone. While some owners proclaim their dog has a 'soft mouth,' meaning it holds things gently, it may still grip and bite firmly if the wild animal is struggling to defend itself or escape. The fragile wild creature may be severely, even fatally, injured even if such injuries are not obvious and the pet owner denies any problem.

Punctures. These appear to be small wounds on the surface, but often include deep and narrow penetration into the body; punctures can cause severe hemorrhage and/or severe organ and bone damage that is immediately serious and life-threatening. For example, cat teeth that puncture the neck and throat of a small animal also may sever the spine, esophagus, or trachea. Punctures to the chest may penetrate air sacs, lungs, and heart, or fracture ribs. Punctures to the abdomen

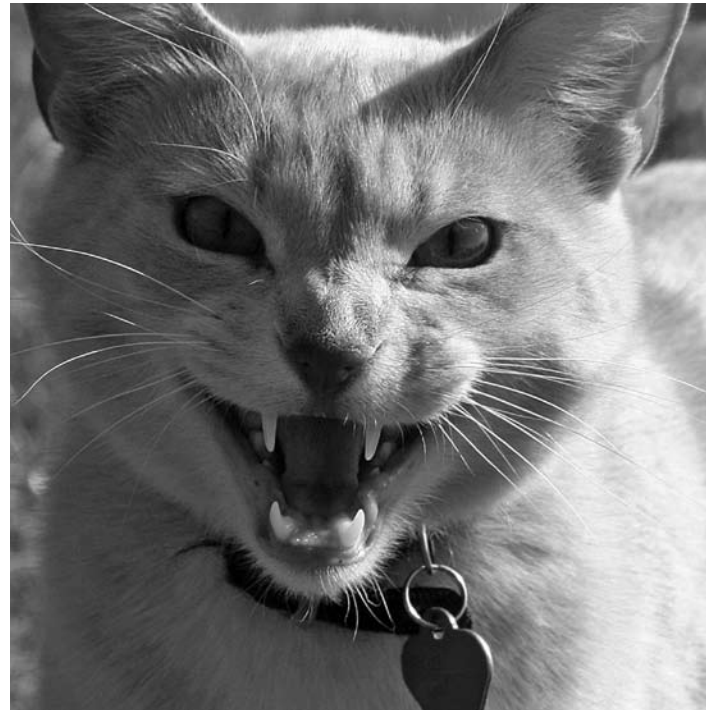


Figure 3. Close up view of a cat's mouth showing the sharp and surprisingly long canine teeth, which are capable of producing deep wounds. Photo by Shirley Casey, CO.

may penetrate the intestines, liver, or kidneys. Depending on the size of the dog and prey animal, each puncture from a canine tooth may crush, lacerate, or puncture muscles, organs, bones, or shells, and cause severe pain and damage (Figures 4–11). Dogs and cats may bite the animal multiple times resulting in numerous punctures that are difficult to find. Cat claws also cause deep punctures when they 'play with' or toss small animals (Figure 8).



Figure 4. This figure represents a bird the size of a young American robin (*Turdus migratorius*) with both the brain and spinal column and gastrointestinal tract shown. The four checkered circles indicate teeth wounds from a cat bite. The irregular gray areas within the body represent specific organs such as brain, liver, etc.



Figure 5. The same representation of the young robin with four cat tooth marks shown close to actual size (as compared to the bird) and depth of penetration. The figure shows how bites to the neck and shoulder can injure crop, esophagus, trachea, and spine—all of which are serious and can be fatal.



Figure 6. Another representation of the robin showing depth and path of wounds caused by curved cat claws and potential associated internal injuries.



Figure 7. Final robin image showing cat claw wounds to lower body and organs or systems that can be injured.

Lacerations. Lacerations are open wounds, longer than they are wide, and may be deep or shallow. Skin lacerations can be minor or severe, depending on size, depth, and underlying damage. In addition to external injuries to the skin, the pressure of teeth or claws causing the laceration may result in a deeper laceration or other internal damage. Lacerations of wings, patagium (birds and flying squirrels), ears, lips, eyelids, and other soft tissue can be minor to severe and disabling or life threatening.

Degloving. This is an area where the skin has been torn away from underlying muscle. When a cat tooth or claw punctures the skin of a small prey animal, the animal often tries to escape. The skin may tear or pull away from muscle, thus loosening the cat's hold and allowing the prey to escape—but with a degloved wound. The seriousness of the wound depends on the size of the degloved area, contamination of the wound, and extent that tissue has devitalized. These open wounds can cause systemic problems, such as

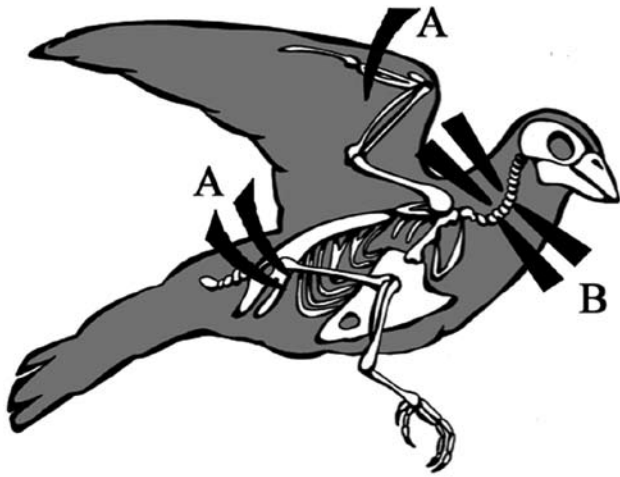


Figure 8. Graphic image of a bird showing major bones in internal skeleton. Curved penetrations represent cat claw wounds as cat tries to catch bird, and straight penetrations represent teeth wounds when cat grabs bird with the mouth. While the image highlights bone damage, other organs likely would be damaged as well.

dehydration, electrolyte imbalance, as well as attract parasites (e.g., flies). Some species, such as certain birds and rabbits, have particularly thin skin that tears away from the muscle easily.

Amputations/Disfiguring Injuries. Cats and dogs may bite or tear off the extremities of wild animals, including wings, legs, and tails, or remove other essential structures, such as eyelids, ears, tongue, or beak. Such major injuries cause severe bleeding and pain and may result in euthanasia due to the need to relieve suffering or an inability to release the animal back into the wild. The nature of the amputation and the animal's ability to recover should be considered based on what is legally allowed, species, age, condition, and ability of the animal to survive if released. For example, a squirrel or songbird with a toe bitten off may be able to recover and thrive when released back to the wild, while a raptor missing a toe might not be releasable. Neither a cottontail rabbit with an amputated leg nor a bird with an amputated wing is able to recover for release back to the wild. Federal and state wildlife rehabilitation regulations may prohibit medical treatments that would prevent release, such as amputation of a wing.

Tears. Skin tears can be minor or severe, depending on size, depth, and underlying damage; degloving is a type of skin tear. Tears of wings, patagium

(birds and flying squirrels), ears, lips, eyelids, and other soft tissue can be minor to severe and life threatening.

Internal tears also occur in the urinary bladder or air sacs of birds, which are part of the respiratory system, or in the chest or abdominal cavity. Tears can be the separation from one another of interconnected organs, such as tearing the kidney from ureter, esophagus from stomach, or diaphragm from the ribs and body wall.

Feathers. Feathers damaged or pulled out by pets can reduce a bird's flight capabilities temporarily or can render a bird flightless. New feathers may grow back if the soft tissue of the feather follicle is not damaged; however, if a bird's feathers are damaged or



Figure 9. Turtle carapace that was chewed upon by a dog and ultimately penetrated with teeth of the dog, causing crushing internal injuries. Photo by Harriet Forrester, NJ.



Figure 10. Turtle with multiple deep plastron puncture wounds caused by a dog's teeth, and fatal internal injuries. Photo by Harriet Forrester, NJ.

pulled out, there may be other wounds or injuries.

Fractures, Sprains, Dislocations.

Cats and dogs can cause a variety of injuries to bones and joints of wild animals. Some fractures may be simple breaks, while other bones may have multiple fractures or are crushed (comminuted fractures). Open fractures can be caused by punctures from the pet's teeth directly to the bone or from bone fragments protruding through the skin (compound or open fracture). Joints may be sprained, fractured, or dislocated (luxated). The fractured bones themselves may puncture and damage other structures, causing hemorrhage, further pain, and debilitation. Severe bone and joint injuries in wild animals can be fatal or prevent release and result in euthanasia. It is common for animals with bone or joint injuries to have other injuries.

Rehabilitators report that injuries to extremities of wild animals are common, such as to wings, legs, and tails. (Figure 12). Rehabilitators also report that a fractured spine is another common type of injury. Severe spinal cord damage, resulting from such fractures, is fatal for wild animals. Fractures and dislocations of shoulders, elbows, wrists, hips, knees, and toes are, unfortunately, also common and often do not heal adequately for the animal to be releasable.

Skull fractures, whether from punctures or crushing, are often severe and have a guarded prognosis. Torticollis, also called wry neck, is when the head is rotated to the side or almost upside down. While there are several potential causes of torticollis, including infection and parasites, some wild animals develop torticollis after spinal or head injuries. Torticollis caused by capture by a dog or cat may be evidence of a bite wound to the neck. While some wild animals recover from torticollis, many do not.

Shaking. Some pets, especially dogs, may grab wild animals and shake them. A wild animal that is shaken by a pet may have damage to nerves, bones, joints, muscles, organs, and more. Since a dog may clamp down on the wild animal's head or upper body and



Figure 11. While the surface puncture wounds from a cat on this neonate squirrel may appear small, the intestinal tract also was punctured leading to death of the animal. Photo by Allan Casey, CO.



Figure 12. While the cat owner felt the rabbit was uninjured, in fact the cottontail had a fractured rear leg with punctures and swelling. Photo by Nora Ward, KY.

then shake, head, neck, spine, and chest injuries are common.

In addition, shaking can cause head trauma, including cerebral contusions, swelling, pressure, hemorrhage, and death, similar to shaken baby syndrome or severe whiplash.

Since a dog that shakes a wild animal has the animal in its mouth, the teeth also may cause punctures, lacerations, crushed tissue and organs, fractures, tears, and more.

It is not uncommon for wild animals' injuries as a result of shaking to be fatal.



Figure 13-a. An illustration of a young Canada goose (*Branta Canadensis* gosling) showing the major bones and organs.

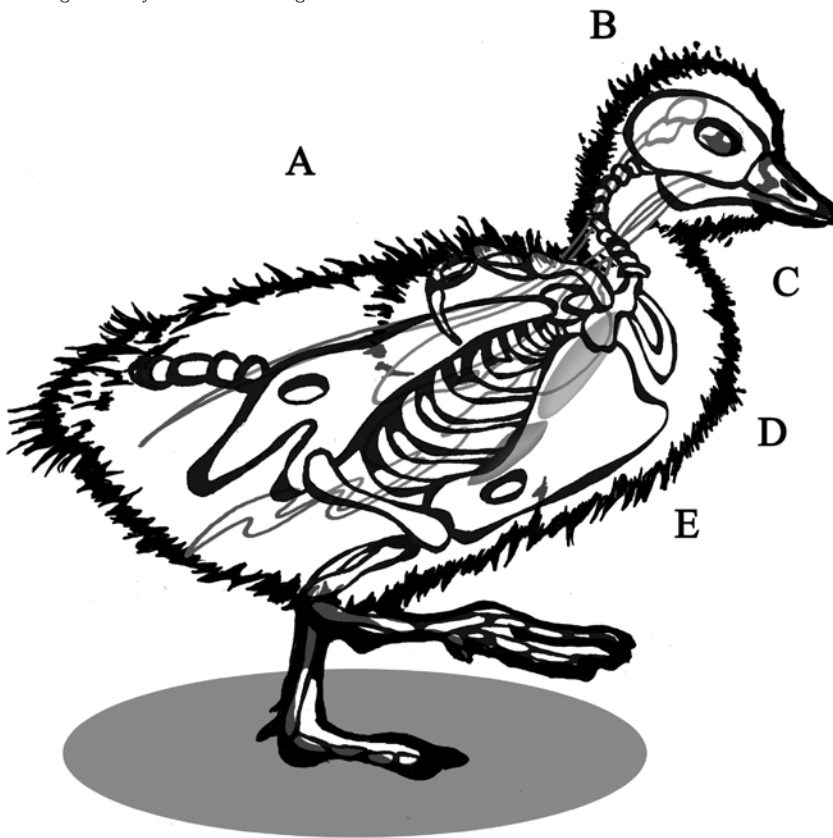


Figure 13-b. Gosling illustration showing internal crushing injuries after a dog attack. Area A shows spinal compression and damage; B shows head and brain trauma; and, C indicates severe neck injury and a severed trachea and esophagus. Area D shows breast damage and E shows liver, gastrointestinal, and bone damage.

Dogs generally shake their prey for a longer duration and with more jaw strength and vigor. Some cats can cause similar damage after shaking or tossing prey.

Crushing. Pets, especially dogs, can crush (compress) wild animals with their jaws or feet, resulting in the wild animals' chests, lungs, or hearts being damaged. Crushing injury to the abdomen damages the stomach, intestines, liver, kidneys, bladder, and caecum, and more, while head and neck crushing could include damaged brain, sinuses, eyes, and jaws. As mentioned earlier, bones, joints, and muscles also may be damaged (Figure 13-a and 13-b).

Crushing wounds can destroy tissue and cause hemorrhage, swelling, and pain. In some cases, the crushed tissue is so damaged and swollen that circulation is impaired and the tissue becomes necrotic. Some crushing injuries are immediately fatal. Other times damage may not be apparent immediately, but shows up later as organ dysfunction, septicemia, or decreased mobility, preventing the animal from obtaining food, water, shelter, or being able to hide and escape harm.

While large dogs cause compression injuries more often than smaller dogs, even small dogs can cause compression injuries to smaller wild creatures by biting or pouncing on them with their feet.

Tissue/Organ Damage.

Wounds, such as punctures and lacerations, and injuries such as head trauma or a crushed organ, can cause bruising, swelling, and pain. While some wounds and injuries are minor, others can be severe and even fatal. In some cases, the damaged tissue or organ may hemorrhage and/or become non-functional, such as a lacerated liver or crushed lungs. In other cases, swelling may impair circulation to the area and the damaged

tissue may deteriorate and become necrotic, causing the animal to die from toxemia or a bacterial infection.

Bleeding/Hemorrhage. In some cases, cat or dog attacks can cause both bleeding external wounds and internal hemorrhaging. Severe hemorrhaging can be fatal to the wild animal. Large hematomas may form at areas of open or closed skin trauma and may resolve with time, or sometimes may lead to abscess formation.

Exposure to Disease/Parasites.

The normal bacteria from a pet's mouth can be introduced into a wound and cause infection. While the transmission of a disease from a pet to a wild animal is considered less common than the wild animal transmitting disease to a pet, a pet still could transmit diseases such as bordetella, distemper, parvovirus, plague, or rabies. While many pet owners or guardians attempt to control their pets' parasite loads, some dogs and cats do carry parasites that may be transmitted to wild animals, including fleas.

Fear/Stress. Wild animals that are captured and injured by pets commonly show rapid breathing and rapid heart rate. Wild creatures, especially prey species, can die from the stress of capture. Both dogs and cats can cause a wild animal to experience fear and stress.

Chasing. Wild animals chased or harassed by pets can develop extremely high levels of stress, even if the pet does not touch the wild animal (Figure 14). Some species, such as ungulates (deer, elk, and big-horn sheep) may develop a condition called capture or stress myopathy when chased, harassed, or captured that is related to extreme physical exertion. In addition to more obvious signs of muscle damage such as difficulty moving its limbs, capture myopathy can cause organ damage that may not appear until several days after the stressful event. Damaged skeletal muscle may break down (rhabdomyolysis) and myoglobin that is released from the muscle is flushed into the kidneys and may result in kidney damage and failure.



Figure 14. This photo was taken at the point a black Labrador retriever was preparing to chase an elk herd. While people were able to get the dog under control, such chases can harm wildlife and pets. Photo by Shirley Casey, CO.

In some cases, the wild animals are injured when chased into hazards, such as traffic, fences, swimming pools, mechanical equipment, or other potentially harmful environments. A pregnant wild animal can have a miscarriage after being chased. Wild mothers that are chased or injured may abandon their young, a secondary problem due to pet activity.

OTHER COMPLICATIONS

The reason a pet was able to have contact with the wild creature is another important consideration. What conditions may have allowed the pet to capture the wild animal.

- Why was the wild animal easily accessible to the pet? Flown into and hit a window? Had it fallen from a nest or tree? Been hit by a vehicle? Been uncovered by gardening tools? Captured and then dropped by another predator?
- Was it orphaned? Dehydrated? Emaciated?
- Had it consumed poison in the milk of the mother, such as a rodenticide?
- Had it consumed insects sprayed with toxins? Or, was the animal itself accidentally sprayed with pesticides or herbicides?

- Was the mother dead?
- Does the wild animal have a debilitating disease or parasites making it more susceptible to capture by a pet?

Additionally, one or a combination of the complications listed below could cause a wild animal to have health problems and consequently enable a pet to capture and injure it.

- Attempted care by well-meaning rescuers can cause or complicate a health condition. It is common for rescuers to feed unsuitable foods and cause a variety of short and long-term problems, including bloat, diarrhea, impacted crop, and nutritional disorders.
- The rescuer may have used an inappropriate feeding method or instruments, causing the animal to aspirate liquids or food, have food matted on its feathers, fur, or eyes, and so forth.
- The wild animal may have been cold and gone into shock.
- The wild animal may have been injured by human handling (dropped, stepped on, held too tightly), tangled in inappropriate bedding, or incurred injuries due to caging or other equipment.
- In some cases, a well-intentioned person administers inappropriate 'medical care' and further compromises the animal's health.
- The animal is stressed and fearful from rescuer and others handling and from transport.

It also is possible for an animal to develop additional complications in the rehabilitation setting. Work to ensure good rehabilitation practices are used, including capture, handling, first aid, quarantine, diets, feeding methods, and so forth.

Multiple Problems Are Likely. While it certainly is possible for wild creatures harmed by pets to have only a single injury, multiple health problems are much more probable, including shock or pain, bruising and wounds, or internal damage and fractures. Many of the factors described above can cause serious and even fatal conditions, often *before* bacteria in a wound develops into a raging infection, abscess, or septicemia. Infections can be fatal for the wild creature, but infections from claws or teeth generally take several days from the time of injury before they are fatal. Hence, if the wild animal dies within two days of injury by a pet, the cause is not infection, but rather is a result of one or more of the factors described here.

TREATMENT

1. Treat for shock—quiet, warm, dark, secure small container/cage. Conduct the examination after warming and stabilizing the patient. Initiate rehydration therapy per veterinary instructions or information found in rehabilitation resources.
2. Consult with a veterinarian on diagnostics and treatment. Many veterinarians expect the rehabilitator to initiate basic first aid and wound management, and to stabilize fractures. Published rehabilitation resources can provide references for wound care and fracture stabilization. Cases that are more severe or where the diagnosis or treatment more uncertain or advanced should be seen and treated by a veterinarian.
3. Continue health care steps appropriate for the condition per veterinary instruction. This may include managing hydration, keeping the animal in a small, quiet, warm cage to reduce activity and allow recovery, administering medications for pain or infection, and any other instructions.
4. Follow effective rehabilitation practices: diet, housing, quarantine, etc.
5. If the wild animal's health problems are so severe that recovery and release are unlikely or impossible, consider timely euthanasia.

CONCLUSION

A variety of health problems may be found in a wild animal that had contact with a domestic pet. It is essential the animal is examined completely to determine the full range of health conditions resulting from the pet attack, reasons that the animal may have been accessible to the pet, and any other factors that could have affected the animal, such as care by the rescuer. While some minor injuries may be treatable, other conditions, particularly those that are severe or when there are multiple serious problems, may not allow recovery and release back into the wild. It is important a complete examination is conducted on each animal to effectively diagnose the condition and injuries, make a prognosis, and determine additional treatment options. The following article, *When Pets Attack Wildlife—Part 2: What to Do*, describes treatment options available.

ACKNOWLEDGEMENT

Jeff MacLachan of Nederland, Colorado, created the illustrations for this paper. Jeff is a wildlife artist, professional illustrator, and husband of a wildlife rehabilitator. A special thank you also goes to the many rehabilitators and veterinarians who contributed to this paper.

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