

## African Hedgehog

### Natural History

African hedgehogs are remarkably hearty pets considering the short amount of time they have been maintained in captivity and how much there is still to learn about their captive dietary requirements. However, you may be faced with a situation where your pet needs medical attention. It is advisable to find a veterinarian who will be willing to treat your unusual pet before an emergency arises.

### Emergency Care

If you have an emergency with your hedgehog, there are a few things you can do for your pet until you can get to a veterinary clinic. Always transport an ill hedgehog in a small secure container that can be kept warm, particularly in cold climates. If an ill hedgehog becomes chilled, it can lead to serious and potentially fatal complications. A hot water bottle or any of the chemical hand warmers can be placed under a soft towel in the bottom of the container to keep the pet warm. Make sure the lid of the container is perforated for ventilation. When the weather is cold, warm up the car before placing the hedgehog in it.

If your pet is bleeding, put firm pressure on the area to slow or stop the flow of blood. Apply undiluted hydrogen peroxide, styptic powder, flour or cornstarch to a small wound or bleeding nail to slow or stop the bleeding. Do not use powdered products on large open wounds. Bandaging is difficult in the hedgehog, but if there is a large wound on the body that needs to be covered, gauze or Telfa pads may be held in place by slipping a small section of a sock over the body, from front to back like a tube. The quills will help to keep it in place and it can be easily cut off at the veterinarian's office. If there is bleeding from the nose or mouth, do not apply pressure to the face, but rather keep the hedgehog quiet in a small dark box to minimize movement and get medical attention immediately.

If your pet is experiencing severe diarrhea or is vomiting, remove all food and offer only small amounts of water. Save samples of vomit or stool in a zip lock bag so your veterinarian can examine them. These samples will keep for two to six hours, particularly if they are kept cool. Do not store these samples anywhere near human food supplies. Wash your hands thoroughly after handling your pet. You can check your pet for dehydration by pulling up on a small section of quills over the back, letting go and seeing how quickly the skin returns to its normal place. Normal hedgehog skin will go back into its normal position immediately, whereas dehydrated hedgehog skin will slowly regain its normal position over several seconds. You may offer a warmed pediatric oral electrolyte solution (such as is found in most grocery stores in the baby food section) or a small amount of honey in warm water orally. Use an eyedropper or syringe, hold the hedgehog so that the head is elevated, but the pet is not completely on its back, and slowly push the fluid into the mouth. Give only as much as the hedgehog will take willingly and allow it to swallow before giving more. If your pet vomits within a few minutes discontinue oral fluids immediately. Hedgehogs that are having severe diarrhea or are vomiting need immediate medical attention.

If your hedgehog is weak or is unable to move, it may be in severe shock caused by a variety of conditions (such as heat stroke, liver or kidney failure, septicemia, severe dehydration, intestinal blockage, etc.) or may be suffering from a neurological disease or a fractured limb. Handle your pet as little as possible in case there is an injury to the spine and to reduce further stress. Slide the hedgehog onto a piece of firm cardboard or thin wood to transport it to a small box padded with soft towels. Place a heating pad, hot water bottle or chemical hand warmer underneath the towels to provide heat. Get your pet to a veterinarian immediately.

Occasionally a hedgehog that is acting sluggish is simply suffering from hypothermia (low body temperature) due to an environmental temperature that is too low. If you warm up your pet as described previously, it should respond within an hour or two and become much livelier and want to get out of the box. If your pet becomes livelier, but still does not return to all of its normal activities, a veterinarian should still see it.

## Medication Techniques

There is no doubt about it; hedgehogs can be a challenge to medicate! With their ability to roll up into a ball, it can become impossible to give medications by mouth or into the eyes or ears. In addition, a hedgehog may become shy around you if it has an unpleasant experience with medicating.

Injectable medications are often preferable to oral medications because they can be given even when the hedgehog is in a ball. In addition, the pet can't see who is giving the medication and you may be spared its shyness later on. Hedgehogs have a large amount of space under the skin that can accept a variety of medications and injectable fluids that might be given if the pet is dehydrated. Hedgehogs tolerate injections fairly well, but may occasionally "pop" or jump when you first try to give the injection. Your veterinarian will show you the proper way to use and dispose of needles, syringes and injectable medications.

Oral medications are best given by masking them with a pleasant taste and getting the hedgehog to take them on its own. Check with your veterinarian before using any of these products to make sure there is no potential reaction with the medication(s) you are using. Hedgehogs have a sweet tooth and some favorite flavors include chocolate (use imitation chocolate flavoring), banana, vanilla and cherry. In addition, some hedgehogs will accept medications if they are mixed with strained meat human baby foods such as chicken or turkey, or canned cat or dog food. Try some of these flavors or experiment with others (with the permission of your veterinarian) without the medication at first, and when an acceptable taste is discovered, mix one part medication with three parts flavoring and try again. Do not give medications mixed with a whole bowl of the regular diet because you cannot be sure your pet will get the entire dose and your pet may reject its food all together in the future if it doesn't like the medication taste.

Some hedgehogs can be scruffed in order to administer oral, eye or ear medications. It is helpful to use a pair of lightweight latex gloves (often found in hardware stores), which will provide better traction when grasping the quills. Grasp the section of skin and quills between and slightly behind the ears while the pet is in a normal standing position. (This method will not work if the pet is already rolled up in a ball.) Lift the hedgehog up off the table so its hindquarters are suspended. Initially your pet will try to roll up into a ball, but it is very difficult to maintain a balled position because the scruff hold is preventing it. Eventually the hedgehog will relax the back legs and you will have access to the mouth, the eyes and the ears. It can be challenging to medicate hedgehog eyes and ears without the scruff hold in the docile hedgehog and impossible if the pet is shy. Ask your veterinarian to provide eye or ear medication in a drop formula rather than in ointment because drops are easier to administer and less messy for the pet. To medicate the ears, wait until the pet is in a normal standing position, get as close to the head as possible without eliciting a defensive reaction and drop the medication directly into the ear canal. If you touch the sensitive facial hairs or ears your pet will pull its quills over its face and you will then have to wait until it is relaxed again. The same method is used for eye medication, dropping it from above where it is more difficult for the hedgehog to see it coming. Make sure both eye and ear medications are at room temperature before administering them to minimize discomfort to your pet.

When applying medication to skin lesions, be aware of two potential dangers. The first danger is that if the hedgehog licks the medication and swallows it, the drug can be absorbed through the intestinal tract into the body. In very tiny amounts, this may not be a problem, but if you apply large "globs" of material, it could potentially lead to a serious toxicity. Secondly, if the hedgehog really likes the taste of the ointment, it may be so vigorous about eating it that it literally mutilates the skin underneath. Watch for signs that the pet is chewing at its skin. If this becomes apparent, notify your veterinarian immediately and wash the medication from the skin. It may be necessary for your veterinarian to change medications or apply a restraint device to prevent the hedgehog from reaching the affected area. After each medication, spend some quiet time with your hedgehog. You may notice your pet anointing itself, probably trying to get rid of the taste or smell of the medication. Allow your pet to relax and investigate you, and talk to it in quiet tones. If there is a favorite treat food, such as a mealworm, this should be given as a "reward" for being such a good patient. All attempts at making the medication experience as non-stressful as possible will pay off in the end with a pet that doesn't become "medication shy" around you.

## Diseases

### Human Hygiene

Most domestic pets have the potential to spread disease to their human companions. Hedgehogs are no exception. Although disease transmission between hedgehog and human is not common, it can potentially happen with such diseases as salmonellosis and external parasites.

The best prevention for disease transmission is to use good hygiene around hedgehogs, or any other pet for that matter. This means washing your hands thoroughly after handling your pet, particularly before eating. Do not wash hedgehog food and water containers or cages in or near human food preparation areas. If there is anyone in the household that has a weakened immune system, they should not be allowed to clean the hedgehog's cage or food and water containers. In addition, children should be instructed in the proper handling of the pet and also should not be allowed to clean the cage until they are old enough to understand the responsibility of hand washing afterwards.

You do not need to be afraid of your hedgehog because the likelihood of picking up a disease from a person you are in contact with is far greater than contracting a disease from your pet. The key disease prevention is common sense and consistent hygienic habits around your hedgehog and other pets.

### Skin Disease

Skin disease is one of the most common reasons that pet African hedgehogs need to see a veterinarian. Normal hedgehog skin should be smooth with occasional small flakes of dried skin. If you notice heavy flaking, quill loss, hair loss, scabs, redness, ragged or crusted ears or swollen, crusted paws, there is a problem. In addition, some hedgehogs will be scratching themselves constantly. A microscopic sarcoptid mange mite causes the most common skin disease. This parasite lives and breeds on the skin and can be transmitted from hedgehog to hedgehog by direct contact. There is a very small possibility that some humans can also contract this parasite, but primarily it affects hedgehogs. Your veterinarian can diagnose the presence of the parasites by examining a small scraping of skin under the microscope for mites and eggs. The condition is treated with an injectable antiparasitic drug. The injection will be repeated two to four times depending on the severity of the disease. All the hedgehogs in the household should be treated because some may be affected and not be showing signs yet. In addition, it will be necessary to clean the bedding and cages thoroughly because mites can live for brief periods off of the pet. Your veterinarian may recommend that you use a light dusting of a desiccant type product or a mild insecticide around the cage or under the bedding.

Other skin parasites include fleas and ticks. Hedgehogs can be infested with the same fleas and ticks that are found on cats and dogs. A tick should be removed by firmly grasping it as close to its attachment to the skin as possible and pulling it out. His area can be cleaned with a skin disinfectant afterwards. Fleas can be eradicated by using a mild flea shampoo or flea powder that is safe for cats. Avoid getting these products in the hedgehog's eyes, ears, nose or mouth. Since both fleas and ticks breed and lay eggs off the pet in cracks and crevices around floors and walls, it will be necessary to treat the cage and room also, as well as any other pets in the household that might be infested. Your veterinarian can advise you on the proper eradication techniques. Fleas and ticks can carry infectious diseases, which can be transmitted through their bites. It is unknown at the time of this writing whether the African hedgehog is susceptible to any of these diseases.

If you keep your pet hedgehog outdoors, it can be exposed to fly larvae. One type of fly larvae, known as Cuterebra lays eggs around the cage door, which then adhere to the hedgehog when it rubs up against this area. Each egg hatches into a single, large larva that burrows into the skin and continues to grow. You will see a large lump forming under the skin with a small hole at its tip, which is the larvae breathing hole. Your veterinarian can safely remove these larvae. There is no aftercare needed once the larva is gone and the hole it occupied is flushed with an antiseptic solution.

The other type of fly larvae is known as maggots. If your hedgehog becomes soiled with feces it can attract the adult fly that lays its eggs directly on the hedgehog's skin. The larvae hatch out in 24 hours and start feeding on the

skin immediately. In literally a matter of hours, significant damage can take place. You can remove some of the maggots by washing your pet immediately with copious amounts of warm water and then using hydrogen peroxide on the area and rinsing again. Your pet should be taken to a veterinarian as soon as possible as some maggots may have burrowed deeply under the skin or there may be severe skin damage with the potential for bacterial skin disease to develop.

Hedgehogs can develop fungal disease of the skin. A fungus called *Trichophyton mentagrophytes* most commonly causes it. This fungus can also affect cats, dogs and humans. The signs of the disease are similar to mange mites, but the hedgehog is usually not "itchy". The lesions appear mostly around the face and ears with dry, crusty and scaly skin. A veterinarian can make the diagnosis by plucking some affected hair or quills and performing a fungal culture. The treatment may include both topical and oral medications. It is necessary to treat all the hedgehogs that might have had contact with each other. In addition, other household pets should be examined by your veterinarian and may also be treated.

Other skin diseases of the hedgehog include bacterial, allergic and neoplastic (cancer).

### **Eyes**

Hedgehog eye disease is not common, most likely due to the excellent protection the quills provide when they are pulled over the face. Hedgehogs can sustain eye injuries due to fighting or contact with protruding cage wires.

These pates can also develop infectious eye disease. Although not reported as of this writing, it is likely that hedgehogs can develop cataracts and glaucoma. A hedgehog's eyes should be clear, bright and dark. If you notice swelling of the lids or of the eye itself, excessive tearing, squinting, staining of the face with eye discharge or a closed eye, there is a potentially serious problem that needs immediate medical attention. You can gently clean the eyelids of the area around the eye with warm water or saline on a cotton ball if there is dried discharge that might be causing discomfort. Particularly in the case of eye injuries, it is important to get your pet to a veterinarian as soon as possible in order to try to save the vision.

### **Ears**

The most common disease that afflicts the ears of the hedgehog is mange mites. The second most common is fungal disease. The normal hedgehog ear appearance is thin, nearly hairless skin with a smooth edge. There should be little or no wax present in the ear canal. The signs of both fungal and parasitic disease are similar and include crusting and thickening of the ear edges, ragged ear edges, flaking of the skin on the earflap and sometimes accumulation of wax in the ear canal. The treatment for these conditions is found under the section on Skin Disease. In addition, hedgehogs can be infested with the same ear mites that can affect cats, dogs and ferrets. The signs include excessive wax in the ear and the hedgehog may be scratching at its ear frequently. The diagnosis is made by either seeing the mites with the naked eye moving about in the ear (they are white and about the size of the head of a pin) or by examining a sample of wax from the ear under the microscope looking for mites and eggs. The treatment can vary from topical medication to injections of an antiparasitic drug. All animals that are in contact with the affected hedgehog should be treated.

Hedgehogs can also develop bacterial ear infections. The discharge in the ear will be of a more liquid consistency than normal earwax and will often have a foul smell. In addition, the pet will be sensitive to touch on that side of its face. The diagnosis is made by examining the ear and the discharge. Your veterinarian may wish to perform a bacterial culture and sensitivity of the material in the ear to aid in selecting an antibiotic. Antibiotics are used topically in the ear and, in severe infections, are also given orally.

If a hedgehog develops an inner ear infection, it may exhibit a head tilt or circle to one side. Damage to the brain can also cause these signs. Get medical attention for your pet as soon as possible.

**Teeth**

Captive African hedgehogs are often afflicted with tooth and gum disease. This may be due to a diet that is insufficiently high in food items that stimulate the gum tissue. Using hard food as a major portion of the diet is the best prevention, but as the pet ages gum and tooth disease may still develop. Normal hedgehog teeth are white and the gums should be a healthy medium to dark pink in color. Signs of dental disease include a decreased or complete loss of appetite, drooling, a foul odor to the breath, reddened and/or swollen gums, tooth discoloration and pawing at the mouth. These signs indicate a serious problem and you should seek medical attention for your pet right away. Your veterinarian may need to take an x-ray to see if there are any tooth root infections prior to instituting treatment. Some hedgehogs that have lost a significant amount of teeth will need to switch over to a soft diet because they have lost the ability to break down hard food.

**Respiratory Disease**

The most common cause of respiratory disease in hedgehogs is bacterial infection. There are a variety of bacteria that can cause problems in these pets including *Bordetella bronchiseptica* and *Pasteurella multocida*. Signs of respiratory disease include nasal discharge, decreased or no appetite, difficulty breathing, increased breathing sounds, loss of energy and sudden death. Respiratory disease can range from a mild upper respiratory problem to a severe pneumonia. One factor that may make a hedgehog more prone to develop respiratory disease is if it is kept at too low of an environmental temperature. In addition, a poor diet and a dusty or dirty environment can contribute to the respiratory disorder. Respiratory disease in the hedgehog can be rapidly fatal if pneumonia develops, so it is imperative to get your pet to a veterinarian as soon as possible if you see any of the signs listed. Your veterinarian will diagnose respiratory disease based on clinical signs, the physical examination and an x-ray. You will need to keep your pet in a warm, quiet, clean area while it is on medication. Exercise should be restricted for hedgehogs with pneumonia until they are back to normal.

Other disorders of the hedgehog that can mimic the signs of respiratory disease include heart disease and cancer in the lungs or chest. These can be differential from respiratory disease by x-ray and/or ultrasound examinations.

**Urogenital Disease**

Disease of the urinary system is not commonly recognized in the pet hedgehog. However, these pets can develop bladder infections and stones. Signs of bladder disease may include urine discoloration, straining to urinate, frequent small urination or a complete inability to urinate. In addition, the pain caused by a bladder condition can cause the hedgehog to have a reduced or complete loss of appetite and become lethargic. If your pet shows any of these signs, you should get it to a veterinarian as soon as possible. Your veterinarian can diagnose bladder disease with a urinalysis and an x-ray. A culture of the urine may be done to aid in the selection of an antibiotic. Bladder stones need to be removed surgically. It is important to encourage your hedgehog to drink extra amounts of fluids when treating for bladder disease. It may help to flavor the water with a small amount of one of the products mentioned under the section on medication.

Hedgehogs can develop kidney disease, which becomes more common as the pet ages. Signs of kidney disease can be vague and can include decreased or loss of appetite, wasting, lethargy, decreased or increased urine output and anemia. Kidney disease is diagnosed by a combination of urinalysis and blood tests. In addition, an x-ray or ultrasound examination may be helpful.

The most common disease of the reproductive organs, the testicles, uterus and ovaries is cancer. Hedgehogs can also develop infections of these tissues. Signs of disease in these organs may include infertility, loss of interest in breeding, penile or vaginal discharge, lethargy, loss of appetite and swelling of the abdomen. Disease of the reproductive organs is diagnosed by physical examination, x-ray, and ultrasound and, in some cases, by exploratory surgery. It is usually recommended to remove the affected organ(s) to affectively treat the disease.

**Gastrointestinal Disease**

There are a variety of diseases that afflict the hedgehog gastrointestinal or digestive tract. One of the more serious is an obstruction of the intestine or stomach with foreign material. Hedgehogs can eat a variety of things in their

environment, including pieces of soft rubber toys, other pet's hair and carpet fibers. Since these items are indigestible, they can become lodged at the pylorus (the outflow area of the stomach) or in the intestine. Once this happens, the hedgehog can die in 24 to 48 hours. Signs of gastrointestinal obstruction include sudden loss of appetite, vomiting (they don't always vomit) and sudden, severe lethargy and depression. The condition rapidly worsens until the hedgehog is completely collapsed and comatose. These signs indicate a dire emergency and you must not delay getting your pet to your veterinarian. An x-ray will confirm the diagnosis and exploratory surgery is necessary to remove the foreign material.

Hedgehogs can also develop a number of different infectious diseases of the gastrointestinal tract. The infectious disease of the most concern is salmonellosis. Hedgehogs can carry the *Salmonella* bacteria normally in their intestinal tracts (as can other species of animals, most notably reptiles) and never develop any signs of disease. Hedgehogs can also develop clinical disease with *Salmonella*. Signs of salmonellosis include diarrhea, depression, loss of appetite, wasting and sudden death. It is known that humans can contract salmonellosis from hedgehogs. As of this writing, human salmonellosis contracted from African hedgehogs is an extremely rare occurrence and the chances of transmission are reduced to nearly zero with good hygienic practices as discussed earlier in this writing. Follow these practices strictly, particularly in cases where your hedgehog has diarrhea. Diagnosis of salmonellosis in the hedgehog is made by a fecal culture. You will need to discuss the treatment options with your veterinarian based on the public health risk for your household. Infants and immune compromised individuals are most at risk for contracting this or any other disease.

Other conditions of the hedgehog gastrointestinal tract include intestinal parasites, the ingestion of toxic substances, cancer and dietary disease. These diseases can have similar signs including diarrhea or constipation, decreased or absent appetite, wasting, vomiting or lethargy. Your veterinarian can make a diagnosis based on a variety of diagnostic tests including fecal examination, blood tests, x-ray, ultrasound and abdominal exploratory.

### **Rabies**

As of this writing, rabies has not been identified in pet African hedgehogs. It is likely that they can contract this disease if exposed to it, but since they are primarily kept as household pets, exposure is minimal. There is currently no approved rabies vaccine for hedgehogs and it is not recommended to vaccinate them with a dog or cat product. A normal behavior called "anointing" is often mistaken for a sign of rabies.

### **Nutritional Disease**

It is likely that nutritional disease is a common problem in the captive African hedgehog. Extensive nutritional studies have not yet been done in this species and it is likely that the natural wild diet of the hedgehog is not being 100% accurately reproduced in captivity. Subtle nutritional deficiencies or excesses could underlie other disease. Therefore, it is imperative for you to stay informed on current progress in recommendations for the hedgehog diet by staying in contact with one of the hedgehog organizations and your veterinarian. At least one nutritionally related disease that is seen with some frequency is obesity. This is common in hedgehogs that are on a diet too high in fat coupled with a lack of exercise. In addition, there is a condition called hepatic lipidosis, which is an excessive fat accumulation in the liver. Fat cells replace liver cells until the liver can no longer function normally. The hedgehog becomes lethargic, depressed, loses its appetite and may exhibit bizarre behavior such as seizures and unusual aggression. These signs are due to the buildup of toxic waste products in the blood, such as ammonia, which then affect the brain. Liver disease can be diagnosed with blood tests, x-rays, ultrasound and liver biopsy if necessary. Treatment for obesity and fatty liver disease is directed at reducing the fat in the diet and increasing exercise. Other medications may be used as needed. Hepatic lipidosis can be reversed if it is caught in time.

### **Neoplasia (Cancer)**

Unfortunately, a large percentage of the captive African hedgehog population is prone to developing cancer as they age. Cancer has been reported affecting almost every organ of the body. Signs of disease vary depending on the area affected. The treatment is based on the organ(s) affected and may even include chemotherapy. It is unknown at this time why African hedgehogs have such a high cancer rate, but perhaps over time the answer will reveal itself as more is learned about this pet.