# Care Cards


## Chelonian Respiratory Disease

Chelonians as a group include turtles, tortoises, and terrapins. Chelonians are well known for their longevity; however, they are susceptible to many health problems in captivity. Respiratory disease is one of the most commonly diagnosed problems in both aquatic and terrestrial species. In this article we will discuss a variety of diseases that can affect the Chelonian respiratory tract.

Poor husbandry is often associated with respiratory problems. Environmental temperature and humidity are associated with changes in respiratory tract function. Low temperature and humidity can be involved in cases of rhinitis. High temperatures can cause stress to the respiratory tract and potential disease. Diet and supplementation can have an effect on the mucosal lining of the respiratory tract. Hypovitaminosis A or C may cause a reduction in the cellular immunity of the respiratory tract, thus predisposing the animal to a respiratory infection. Hygiene plays an important role when bacterial infections are suspected.

Clinical signs such as an aquatic chelonian swimming to one side or exhibiting abnormal buoyancy could indicate pneumonia. Other signs like whistling, gasping, or open-mouth breathing may indicate a problem. Nasal discharge, puffy eyelids, and an overall dullness to the scutes may also be seen. Abnormal posturing with the animals head and neck extended can be seen with disease.

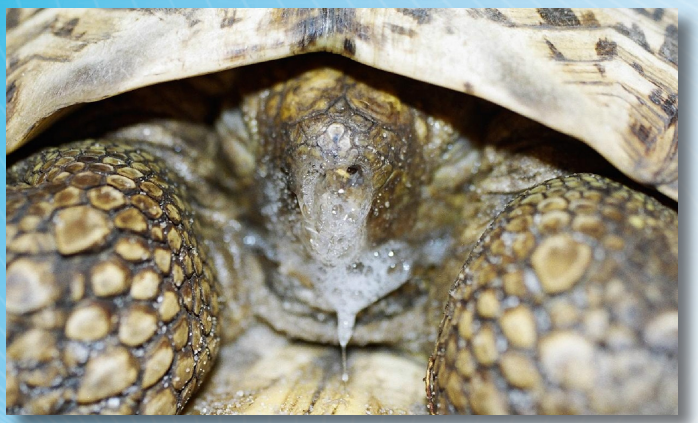
The most common cause of respiratory disease in chelonians is bacterial organisms. The most significant bacterial disease in terrestrial chelonians is mycoplasmosis; the most commonly isolated strain being *Mycoplasma agassizi*. The organism has been associated with rhinitis as well as upper respiratory tract disease. An ELISA test has been developed to help confirm exposure to the organism. Gram-negative Enterobacteriaceae, specifically *Proteus rettgeri* and *Pseudomonas spp*., have also caused respiratory infections. *Pasteurella testudinis* has been isolated in terrestrial species with respiratory disease. Unfortunately, the organism has also been isolated in healthy animals, and therefore the significance of this organism remains unknown.

The most common viral cause of respiratory disease in chelonians is herpesvirus. This disease is usually associated with a high mortality rate. With this infection, a thick discharge can be found covering the eyes, the glottis, or within the trachea. The disease can cause harsh respiratory sounds, pneumonia, tracheitis, and conjunctivitis. Paramyxovirus has also been associated with respiratory infections, while the Sendai virus has been associated with rhinitis in chelonians.

Fungal respiratory diseases are more common in terrestrial than aquatic chelonians. They are usually associated with fungal stomatitis. Occasionally an animal will develop a fungal respiratory disease because of immunosuppression, either from other debilitating conditions or the use of immunosuppressive drugs.

Two different parasites have been documented as a potential causative agent in chelonian respiratory disease. An intranuclear coccidia organism has been isolated in the alveolar epithelium of a chelonian with pneumonia. A trematode in the family Spirorchidae is a common cause of respiratory disease in freshwater and marine chelonians. Although the adult trematodes live in the heart, the eggs have been associated with a severe pneumonia.

Parasitic migration through the respiratory tract can also lead to secondary damage and infection. Rhadbias and Pentostomaids can cause damage to the respiratory tract. Treatment for these



parasites can also cause pneumonia associated with the reaction caused by dying organisms.

Traumatic causes of respiratory disease are usually related to vehicle involvement. For terrestrial species, cars and motorcycles can cause a crushing injury to the carapace, while boats are usually the cause of damage to the aquatic species. Predators can cause biting puncture damage and occasionally cattle will step on a terrestrial species. Regardless of the cause of the trauma, the effect is still the same, a rapid loss of the normal pressure required to keep the lungs properly inflated. These situations need rapid treatment to reestablish normal respiratory function.

Neoplasia is rare in chelonians although fibroadenomas and fibropapillomas have been documented. These are more common in aquatic species, and a virus may be connected to the later neoplasia.

The most important aspect in treating respiratory disease in chelonians is correcting any underlying environmental problems. The animal must be maintained within its normal temperature zone for any medicines to be effective. Dietary problems must also be corrected and proper supplementation provided if necessary.

Viral respiratory infections will have to “run their course.” Currently, there are no antiviral agents available for use in reptiles. Affected animals should be quarantined to help prevent the spread of disease. Hygiene should always be evaluated and proper disinfectants used. Treatment with antimicrobial agents to prevent secondary bacterial infections should be considered.

The treatment of choice for bacterial (*Mycoplasma*) respiratory infections is the antibiotic enrofloxacin (Baytril). A dose of 5mg/kg body weight every other day for 10 treatments is recommended. Additionally, the nares of effective animals should be flushed with enrofloxacin daily. Care should be taken when flushing with enrofloxacin to prevent the drug from making contact with the animal’s eyes. This could cause severe irritation to the mucous membranes surrounding the eyes. Remember that a small percentage of chelonians will exhibit an oral discharge when being treated with enrofloxacin. Following antimicrobial therapy the affected animals may remain carriers of disease, with reoccurrence a possibility. For this reason, ill or recently treated chelonians should not be released into the wild.

---


References:

1.) Mader, Douglas: Reptile Medicine and Surgery, W.B. Saunders Company, 1996.

2.) Frye, Fredric: Reptile Care; An Atlas of Diseases and Treatments, Volume 1. T.F.H. Publications. New Jersey, 1991.

3.) Marcus, L: Veterinary Biology and Medicine of Captive Amphibians and Reptiles, Lea & Febiger, 1981.



Animal Veterinary Hospital of Orlando

Questions? Please contact Dr. Bruce Bogoslavsky • Animal Veterinary Hospital of Orlando • 1320 West Oak Ridge Road • Orlando, FL 32809 • Phone: 407.855.7387