A SURVEY OF DISEASE CONDITIONS IN PET STORE REPTILES WITH DIAGNOSTIC AND THERAPY OPTIONS

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ABSTRACT: This is a review of the disease processes identified in a population of reptiles (n=349) sold through a pet store chain over the time period from 2003 to 2010. In broad categories there are 50 chelonians, 180 lizards, and 119 snakes.

KEY WORDS: reptiles, disease survey, lizard, snake, tortoise, turtle, diagnostics, therapy

INTRODUCTION

The species of chelonians include: Russian Tortoise Testudo horsfieldii n=33, red-eared slider turtle, Trachemys scripta elegans n=8, turtle, not specified n=5, and one each Malayan box turtle, Cuora amboinensis, box turtle, Terrapine species, African side neck turtle, Pelomedusidae family, and red-footed tortoise (Chelonia carbonaria). The species of snake submitted for examination include: ball python (Python regius) n=54, ‘red tail’ boa, Boa constrictor constrictor n=48, corn snake, Elaphe guttata n=10, snake not specified n=3, and one each ribbon snake, Thamnophis sauritus, milk snake, Lampropeltis triangulum, Garter snake, Thamnophis species, and green tree python, Morelia viridis. The species of lizards submitted for examination include: leopard gecko, Eublepharis macularius n=59, bearded dragon, Pogona vitticeps n=42, green water dragons (Physignathus cocincinus) n=20, common green iguana, Iguana iguana n=17, gecko, not specified n=15, anole, family Polychrotidae n=7, Savannah monitor, Varanus exanthematicus n=6, Lizards, not specified n=6, emerald Swift, Sceloporus malachiticus n=3, blue tongue skink, Tiliqua species n=2, chameleon, not specified n=2, and Ameiva, family Teiidae n=1.

RESULTS AND DISCUSSION

While many of the lizards and snakes were young animals (evidenced by size and rarely yolk sac remnants observed on gross post mortem examination), the age of many of the chelonians was not determined.

The most common diseased organ system was the gastrointestinal tract. Some lesions/conditions appeared to be more common in the groupings, but were actually reflections of the types of animals commonly examined. Recognizing the common disease conditions seen in specific species will aid in developing an appropriate differential diagnosis.
In this survey although 65% (228/349) were complete post mortems, some submissions did not contain a complete set of tissues and autolysis complicated tissue evaluation especially for the intestinal tract. Multiple disease processes were not uncommon, so percentages will not add up to 100%, as some reptiles had lesions falling into multiple categories.

Chelonians

Of the 50 animals examined, the most common finding was herpesvirus (n=19). This common finding is due to the majority of the submissions coming from Russian tortoises and in many cases from multiple outbreaks. Herpesvirus-associated rhinitis, stomatitis, glossitis, tracheitis and bronchopneumonia has been described in a number of tortoises. This herpesviral infection is frequently complicated by secondary bacterial infections and generally results in severe debilitation of the tortoise. The transmission is most likely from infected carriers although the pathogenesis of this viral infection has not been fully described.

Dermatitis (n=9) was also a commonly recognized lesion, primarily of the water turtles. Based on the history, these lesions were suspected to be traumatic in origin and slow to resolve with apparent adequate therapy.

A nonspecific enteritis (n=5) with one case each of a cryptosporidial enteritis and trematode enteropathy and two nematode enteropathies were identified. Four cases of pneumonia were seen.

A small number of animals had intravascular parasites consistent with spirorchid fluke eggs. Adult spirorchid flukes (blood flukes) inhabit the cardiovascular system (heart and blood vessels) of many freshwater and marine turtles. These are analogous to the schistosomes of birds and mammals. Eggs deposited by the adults are carried through the circulatory system and can block small blood vessels in many organs producing microgranulomas. As the eggs migrate to the lumen of the intestines, this can lead to necrosis and bacteremia. In freshwater turtles, the intermediate host is a snail.

Lizards

Of the lizards (n=108), the most common finding was of cryptosporidial enteritis and/or gastritis (n=61). Again, this number is markedly elevated, as the most common lizards examined were the leopard geckos. Adenovirus infections (n=26) were also very common and could be due to the number of bearded dragons that were examined. This viral infection has become established in certain U. S. lizard breeding groups of the genus Pogona (bearded dragons). The common clinical signs in young dragons are a progressive weakness and anorexia.

A fungal dermatitis consistent with Chrysosporium anamorph of Nannizziopsis vriesii (CANV) was the most common skin lesion (n=22). The diagnosis was made by the fungal morphology and histologic lesions, although some cases were confirmed by culture and PCR. This has been described in bearded dragons and other lizards as a keratinophilic fungus that can result in a fatal
granulomatous dermatitis. There were cases of dermatitis where the organism identified was bacterial (n=9) and in some cases no specific microbes (n=7) were recognized.

Both a hepatitis (n=17) and enteritis (n=14) somewhat nonspecific were recognized as frequent lesions.

There was also evidence of systemic debilitation characterized by hepatic atrophy and/or atrophy of the coelomic cavity fat pads (n=12).

Snakes

The largest group of reptiles submitted was snakes (n=119). Of these, generalized debilitation was a common presentation. Forty-nine animals had significant hepatic atrophy as well as atrophy of the coelomic cavity fat pads. An enteritis and/or enterocolitis was also a very common finding of which could be accounted for by problems with husbandry such as inadequate heat and/or humidity.

Inclusion body disease of boids (n=14) was also a frequent finding although not unexpected, as the majority of snakes submitted were of susceptible boids. Skin mites were not uncommon (n=5) as well as enteric and gastric Cryptosporidia (n=8).

**HOW TO APPROACH DIAGNOSTICS AND THERAPIES IN PET STORE REPTILES**

The most important aspects of diagnosing sick reptiles in the pet store come down to the training of the employees/caretakers of the reptiles. Good observational skills and an understanding of basic health and behavior parameters are paramount to early detection and evaluation of these reptiles in the veterinary hospital. Seeing a sick reptile 1 or 2 days into an illness many times give a much better prognosis compared with seeing a sick reptile 14 to 21 days into an illness.

When possible, diagnostics should be performed. These should include (but not be limited to) a thorough physical examination, fecal parasite exams (direct, float and/or special stains), blood work (CBC/chemistry) and histology/cytology when indicated. More advanced diagnostics, including cultures (bacterial and fungal), imaging techniques (radiographs, ultrasound, MRI, CT) and molecular testing (including PCR testing) may also be indicated. Once a diagnosis is obtained, specific treatments, when available, should be recommended and pursued. While waiting for test results, supportive care (including environmental support, fluids, nutritional (caloric and vitamin) support, antibiotics and more) should be instituted as needed on a case by case basis.

Many of the common presentations that are seen in my practice (that services 5 local national chain pet stores) are manageable, and many of these animals that are presented are not included in the necropsy numbers listed above. The most common conditions that we are presented with are parasites in lizards (coccidia, pin worms, protozoans in bearded dragons, cryptosporidia in leopard geckos), mites and retained sheds in snakes, and failure to thrive/anorexia in all species,
can be successfully managed in many cases. Cryptosporidia in any species seems to be the most frustrating in our practice, as there is close to a 100% mortality rate in diagnosed patients despite a variety of attempted treatments.

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RECOMMENDED READING