

Main nutritional diseases

Nutritional osteofibrosis:

Is a rarifying osteodystrophy particularly frequent in herbivorous reptiles like terrestrial turtles and green iguana: it is the consequence of secondary hyperparathyroidism of nutritional origin, induced by hypocalcemic intake and hypovitaminosis D3 by lack of exposition to UVB.

Hypovitaminosis B1 happens generally in piscivorous reptiles fed with frozen fish meat or fresh fish rich in thiamin.

In snakes and monitor lizards, whole and balanced prey consumers, diseases related to diet are rare expect for being prone to being overweight in captivity.

Hypovitaminosis A

Observed especially in aquatic turtles and semi-aquatic turtles.

We can observe hyperkeratosis, eyelid edema, dry conjunctive and corneal opacity.

Hypervitaminosis A

Generally following strong vitamin A injections.

We can observe patches on the skin, shedding problem with thickening of the skin and lesions that look like 3rd degree burn

Hypovitaminosis C

Leads to anorexia and cachexia: the skin is thickened to the point of rupture, especially in the dorsal area.

Hypovitaminosis E

Observed in reptiles fed with a diet too rich in polyunsaturated fatty acids that increases the degree of rancidity. Leads to a steatite (liver problem), shedding problem, skin necrosis, fatty deposits and bacterial infection.

Hypocalcaemia/hypovitaminosis D

Leads to a malformation of the shell because it is soft and causes an abnormal shedding.

Diet too rich in calories and proteins

Leads to an overgrowth of nails, beak and shell in turtles.

Main skin diseases

Ecdysis

It is the process in which the reptiles create a new skin and gets rid of the old one (commonly called shedding).

The process is not the same for all reptiles. :

Many lizards shed in large pieces, snakes shed entirely all at once. Chelonians (turtles) shed by intermittence.

Shedding requires a preparation about two weeks long before the real shedding starts.

The new skin is more fragile and permeable in the beginning.

Factors that influence shedding:

Age;

Hydration;

Reptile's environment (humidity, temperature, absence of abrasive substances);

Nutritional state of the reptile (hypovitaminosis A and Hypoproteinemia);

Skin parasites;

Season influence : Daylight, temperature and rain according to humidity;

Systemic disease;

Abscess, presence of crusts on the skin.

Dysecdysis

Shedding that is not going correctly.

For snakes, it is easy to evaluate because shedding is made in one piece. For lizards, the presence of large loss of keratin on the skin with scale retention can cause necrosis on the tip of the paws and loss of extremities due to ischemia and necrosis.

Conjunctivitis: retention of periocular keratin.

Hyperthyroidism (snakes): recurring shedding problem, think about a hyperthyroidism problem.

The main cause is dehydration due to insufficient humidity in the vivarium. Treatment: Increase relative humidity (warm water bath), encourage the snake to move over a soft abrasive surface like a humid towel.

Herpes virus

Turtles: We generally see the disease in green turtles less than 3 months old brought up in a pool. It begins with papules than progresses to grey plates.

Papillomatosis: It is a contagious disease in reptiles.

Poxvirus: It is a disease than can cause a necrotizing dermatitis or heal by itself; it can even lead to a serious debilitating disease if lesion cause anorexia. It is found that reptiles are healthy carriers and develop the disease during stressful periods.

Retrovirus

It is a virus associated with shedding problem in pythons.

Bacterial infection

Bacterial skin infection are the result of injuries, poor living conditions, excessive humidity, contaminated substrate, inadequate temperature (too low generally) and malnutrition.

Vesicular or bullous snake dermatitis

The disease is due to a contamination of the ventral skin because of the presence of a too high relative humidity in the vivarium.

Septicemic ulcerative cutaneous dermatitis: or ulcerous shell disease

It primarily touches aquatic turtles.

Following a contamination of the substrate, bacteria will benefit from the excessively humid shell that lets them through: signs begin with ulcers on the shell and skin and can lead to septicemia and death.

Abscess

Any skin infection can lead to an abscess. In reptiles, we do not expect to see liquid pus like in mammals. We will see abscess with a lot of solid fibrin material. We often see oral abscesses than touch the middle ear in aquatic turtles.

Dermatophilosis

We see hyperkeratosis, necrotizing dermatitis and ulcers.

Fungal dermatitis

It is a frequent disease in reptiles. Generally, it is associated to poor environmental conditions like an excess of humidity, inadequate substrate or the presence of skin lesion that allow an entry way for fungus. The disease can manifest in the form of erythema, localized edema or vesicles that empty of their content and complicate the veterinarian's diagnosis.

Parasites

Mites: They are the most frequent parasite in snakes and lizards. Mites lead to irritation and lesions on the skin that can evaluate to a cutaneous erythema and secondary bacterial infection that can complicate in septicemia.

Ticks: seen especially in outdoor animals.

Myiasis: reptiles that have the anus soiled by stool following diarrhea attract flies that lay eggs on their skin. Then, we see larvae appear and cause important skin irritation. A local treatment and antibiotics are necessary.

Flatworms: We see the disease in snakes imported from Australia, South America and East Asia. Cestodes can migrate on the skin and lead to the formation of bubbles and cysts. An oral treatment and surgery is necessary.

Retention of spectacles

Retention of periocular spectacles in snake can be differentiated for normal spectacles. They are wrinkled and more opaque than normal spectacles.

Some signs of skin disease

Vesicle: Environment too humid. Bacterial infection? Parasitical?

Color change: trauma, injection site, systemic disease, parasites, hypothermia, stress.

Epidermis and dermis separation: Hypovitaminosis C, hypervitaminosis A, kidney problem, cachexia, hypoproteinemia.

Excessive shedding: Hypervitaminosis A, hyperthyroidism.

Nodule: Granuloma, abscess, infection due to fungus, skin parasites.

Edema: Vasculitis, septicemia, cardiovascular or kidney problem, contusion, infection.

Patches: Burn, viral infection, vascular necrosis, injection site.

Petechiae: Septicemia, thrombocytopenia

Ulceration: Trauma, bacterial infection, septicemia, parasites.

Disease causes for reptiles in captivity

Vivarium material: Not waterproof, material too abrasive

Vivarium design: Poor ventilation, absence of ventilation to avoid trauma in the mouth, cleaning in hard to reach places.

Heat source: Absence of protection on the heat source, lack of space for heat

exposition.

Mixing different species: Fighting.

Plants: Be careful to irritating and toxic plants.

Humidity: A too high humidity leads to bacterial proliferation, a too low humidity leads to dehydration and shedding problem.

Temperature: Avoid extreme temperature, a too high temperature can lead to dehydration and shedding problem, a too low temperature can lead to metabolism increase, incomplete shedding and promotes bacteria development.

Scratches: Reptiles rub their mouth on the sides of the vivarium and can have scratches that can become deeper wounds if not treated.

Bites and abscess: Live prey can bite the reptile, this indicates that the reptile is fed too much or not going well.

Contact dermatitis: A substrate like cedar shavings that contains resin or a substrate that contains bleach residues can lead to contact dermatitis.

Nails and beak too long: Observed especially in young fed reptiles, and turtles raised on a smooth surface that does not allow wearing of the nails.

Frostbite: Turtles forgotten during the night are sensitive to frostbite, it causes problems like lesions to the extremities, blindness and neurological problems.

Burns: By the heat source, chemical agents, defective electrical equipment.

Turtle's temporal gland impaction

Situated on the lateral commissure of the mouth, it is used for defense, marking territory and attract insects. An abscess can form if this gland is blocked. The eye orbit can be touched due to the proximity of the gland.

Fluoroquinolone intoxication

Young turtles and turtles in incubation are sensitive to injection of the fluoroquinolone molecule; a deformation of the shell can be caused by the action of this molecule on the cartilage of growing reptiles.

Ophthalmology

Ophthalmic diseases are observed in reptiles following diet imbalance and also systemic diseases.

Precorneal lens

It is a layer of skin that protects the cornea, the superficial layers sheds with the rest of the skin in one piece. The lens changes color a couple of days before shedding, it becomes gray or blue and returns to transparent after shedding.

Retention of lens in snakes.

Congenital malformation: Microphthalmia (small eye).

Herpes virus

Young turtles that present a proliferative lesion that heals by itself, eyelid ulcers and fibropapilloma of the eyelids and conjunctivitis that can lead to blindness and serious systemic disease.

Eyelid and lens inflammation: Generally associated with fungal dermatitis.

Conjunctivitis

It is hard to find the cause, a flush of the tear duct with saline and application of a local and general antibiotic is necessary if an infectious disease is suspected.

Post hibernation conjunctivitis: especially in turtles.

Hypovitaminosis A

A lack of vitamin A leads to blepharitis and conjunctivitis following an accumulation of scales and to occlusion of tear ducts therefore a local infection associated with the aftermath on the internal organs of hypovitaminosis A.

Treatment consists in administering vitamin A once a week then oral supplementation.

Ulcers and corneal perforation

A non-treated ulcer can lead to perforation of the cornea.

Uveitis: A uveitis is generally the consequence of an infectious systemic disease.

Cataracts: Observed in older reptiles.

Gastro intestinal system

Here are some signs of gastro intestinal disease:

Regurgitation, vomiting, diminution of feces and diarrhea.

Digestive diseases show vague signs like not eating, sleeping a lot, weight loss, etc.

A stool analysis is essential for any reptile that presents signs of digestive diseases and vague signs.

Anorexia:

Non-specific, any disease can lead to anorexia in reptiles.

(Parasitism, foreign object, sand impaction, tongue trauma, stomatitis, esophagitis, enteritis, tumor.).

Regurgitations:

Seen in snakes and semi-aquatic especially.

Esophagitis, gastritis, parasitism, inappropriate food, overfeeding, reaction to some medications, manipulation after eating, impaction, liver problem, metabolic disease, stress, tumor, etc.

Vomiting:

Similar to regurgitations

Constipation:

Parasitism, dehydration, inappropriate food, foreign object, intussusception, overfeeding, systemic disease, vesicular disease, renomegaly, etc.

Diarrhea:

Inadequate temperature, sudden diet change, excessive water consumption, metabolic disease, parasites, food intolerance, enteritis, colitis, intussusception, prolonged antibiotherapy, systemic disease.

Abdominal distension

Distension of any abdominal organ, gestation, dystocia, egg retention, obesity, obstruction in urinary tract, vesicular calculus, obstruction, intussusception, ileus, tumor, liquid accumulation, hypoproteinemia, edema.

Erosion and rostral ulcer:

Small lizards like bearded dragons and snakes often have mouth lesion that could prevent them from eating and can also lead to bone infection.

Dental disease:

Small lizards and chameleons are more prone to developing a dental disease.

Causes: soft diet and excessive fruit ingestion, hyperparathyroidism, immunocompromised animals, inadequate environment.

Stomatitis:

Seen in all reptiles.

Stress, environment and inadequate hygiene;

Turtles: Signs are those of stomatitis-rhinitis- conjunctivitis.

Herpes and iridovirus infection

Main signs are hyper salivation, difficulty swallowing, difficulty breathing, lesion on the tongue, oropharynx and nasopharynx, nasal secretions, conjunctivitis, swelling of the neck; skin peels off on head and neck. Herpes virus can attack the liver, kidneys and neurological signs.

Lizards: hyper salivation, respiratory signs with open mouth, lesion in the mouth, bone abscess and infection if left untreated

Snakes: the cause can be kidney insufficiency; signs are hyper salivation, respiratory signs, blood in the mouth.

Immunosuppression

Viral infection.

Local wound in the mouth.

Stress (inadequate environment, overpopulation, inadequate hygiene, inadequate temperature and humidity, diet misbalance, etc.)

Tongue paresis

It is frequent in lizards like chameleon; the tongue is a muscle that is used to capture their prey. When the parathyroid gland has a problem (nutritional secondary hyperparathyroidism) the tongue retractor muscle becomes weak and lazy. Droughts, accumulation of substrate, lesion on the tongue lead to the chameleon having his tongue in extension and can't get it back in. Infection can follow.

Mouth abscess, ulcers and petechiae

Causes: Stomatitis, dental disease, inadequate environment and diet.

Cryptosporidiosis, mouth, oesophagus or stomach tumor are suspected if the reptile is presented with blood in the mouth.

Esophagitis:

Signs: Hyper salivation, anorexia

Causes: Stomatitis, bacterial, viral or fungal infection, immunosuppression, diet misbalance, inadequate environment.

Gastritis:

Anorexia, regurgitation, weight loss,

Causes: cryptosporidiosis, internal parasites, inappropriate diet, bacterial infection, and tumor.

Hepatic disease:

Causes : Viral, bacterial, fungal infection, parasites, intoxication (aflatoxines), cirrhosis and/or chronic fibrosis, lipidosis and tumors.

Hepatic lipidosis

Accumulation of fat in the liver in reptiles during hibernation and production of eggs, moderate lipidosis is physiological.

Lipidosis is pathological when it is associated to diet misbalance and inadequate environment. Lipidosis is generally subsequent to a chronic problem.

Predisposing factors: Anorexia, diet too rich in fat and low in protein, inadequate hibernation, secondary hyperparathyroidism, hyperoestrogenism, hypothyroidism, intoxication and genetic factors.

Signs: Diminished appetite, sleeping more, jaundice if disease is very advanced, the reptile can be obese, normal or skinny. Abnormal feces in color and consistence..

Presence on a concomitant disease is very probable.

Treatment consists in treating the concomitant disease in cause, correct the diet misbalanced and upgrade the animal's life conditions.

Intestinal impaction, constipation and foreign body

Signs: Anorexia, dehydration, feces in small quantities or absent.

Causes: Inadequate substrate, hypocalcaemia, secondary hyperparathyroidism, insufficient water intake.

Digestive organ prolapse

The cloaca, colon, bladder, hemipenis, phallus and oviduct.

Causes: Constipation, tenesmus (during dystocia, overfeeding, urethra or bladder calculus (no bladder in snakes and some lizards), trichobezoar, parasitism, enteritis, inadequate environment, tumor, pressure increase in coelomic cavity, obesity, respiratory difficulties.

Obstruction, kidney disease, hypocalcaemia, congenital spine disease, metabolic bone disease, hyper sexuality (penis prolapse).

Fungal and parasitical diseases

Protozoa: entamoeba inadens: snakes, lizards and occasionally turtles.

Flagellates: especially herbivorous.

Coccidiosis: eimeria, isospora (not in turtles).

Cryptosporidiosis: cryptosporidium serpemntis.

Helminthes: trematodes.

Cestodes: flatworms

Ascaridiosis

Strongyloidis (nematodes) especially in snakes.

Pinworms: desirables in moderate quantities.

Pentastomids: Tongue worms.

Cardiovascular diseases

Lizards:

Frill necked lizard: granulomatous myocarditis;

Green iguana: secondary aortic stenosis to atrioventricular dilatation, infarction abscess;

Savannah monitor : sudden death with infarction and hepatic adenovirus.

Snakes

Black king snake: cardiomyopathy, rhabdomyosarcoma.

Burmese python: Aortic aneurism and cardiorespiratory arrest, bacterial endocarditis.

Carpet python: congenital valvular disease, congestive cardiac insufficiency.

Copperhead: haemangiosarcoma

Decker's rat snake: congestive cardiac insufficiency.

King mole snake: Cardiomyopathy

Puff adder: Chlamydophilose infection

Rattlesnake: obesity with hyperlipemia and cardiovascular diseases

Pink boa: Viral myocarditis (adenovirus).

Blood parasites

It is relatively common in wild

Metabolic vessel disease

A hypervitaminosis D3 or a misbalance in the calcium/phosphorus ratio leads to the mineralisation of the vessels. Reptiles affected by this disease suffer from chronic kidney disease and renal gout.

Urogenital disease

Uric acid is secreted by kidney tubules and does not reflect the glomerular filtration. Uric acid increase is noted during gout or renal tubular disease.

Signs: weariness, anorexia, weight loss, dehydration.

In some lizards, big kidneys can be palpated through the caudal coelomic cavity or during digital cloacal palpation.

Bladder

There is a bladder in turtles and some lizards.

Vesicular calculus: they are urates in lizards and turtles.

Blood in urine, tenesmus with an abnormal back paw position, penis prolapse, difficulty laying eggs and death can follow.

Neurological disease

Signs: Tilted head, dizziness, misbalance (ataxia) opisthotonos, convulsions, dysecdysis, difficulty swallowing and incapacity to catch preys.

Spine impairment.

Weakness in the whole body.

Hearing from only one side, paresis or paralysis, loss of pain sensation, cloacal tonus loss, dragging hind legs or whole body.

Causes: Encephalitis, head trauma, septicemia, toxins: organophosphate, ivermectin, nicotine, metabolic disease, hypocalcaemia, kidney insufficiency, tumor, medial or internal otitis.

Blindness: retina damage, cataract, uveitis, lens retention.

Nutritional and metabolic disease:

Secondary hyperparathyroidism, hypocalcaemia, thiamin, biotin, vitamin A, E/selenium deficiency, kidney disease (gout) or hepatic, hypoglycemia xanthomatose (cholesterol accumulation in the brain), trauma.

Intoxication: organophosphates, ivermectin, metronidazole, lead, plants (oxalate rhubarb toxicity)