

Ophthalmic Diseases in Exotic Pets



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Exotic Pets

• Pocket Mammals

- Rabbits
- Rodents
- Ferrets
- Hedgehog
- Sugar glider



• Avians



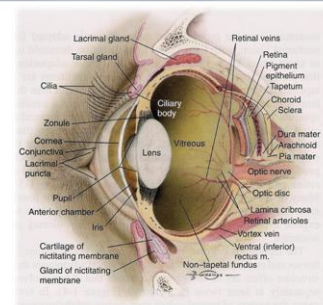
• Reptiles&Amphibians



Instrument and Supplies Diagnostic



Basic Ophthalmic Anatomy

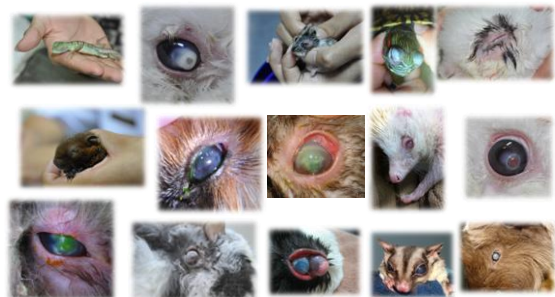


Ophthalmic diseases in Exotic Pets

• Problem list :

- Conjunctivitis/ Blepharitis
- Dacryocystitis / Epiphora
- Corneal ulcer :
superficial, Deep, Indolent ulcer
- Corneal abscess
- Proptosis
- Keratoconjunctivitis sicca (KCS)
- Prolapse of the nictitans gland
- Uveitis / Cataract / Glaucoma

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Corneal Ulcer

Clinical signs

- Blepharospasm
- Epiphora
- Pain may or may not have corneal edema
- Neovascularization
- Discharge
- Non-viable corneal tissue
- Miosis ; ulcer may or may not be visible without fluorescein staining

Corneal Ulcer

Differential Diagnoses

- Corneal stromal abscess
- Corneal lipidosis
- Corneal dystrophy
- Conjunctival hyperplasia (pseudopterygium)
- Corneal dermoid
- Keratitis
- Other corneal opacities

Corneal Ulcer

Diagnoses

- Fluorescein staining
- Bacterial culture and antibiotic Sensitivity
- Cytology

Corneal Ulcer

Treatment

- Topical antibiotics
- Systemic antibiotics
- Analgesics
- Manual debridement of non-viable corneal tissue
- Grid keratotomy
- Keratectomy
- Pediculated conjunctival flap
- topical ophthalmic atropine solution, if pupil is miotic
- topical calcium EDTA

Corneal Ulcer

Prognosis

- Uncomplicated corneal ulcers usually heal well with medical treatment
- Complicated/indolent ulcers/descemetocoeles usually require surgical intervention in addition to medical treatment
- Corneal scarring is possible

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Bacterial conjunctivitis

Clinical signs

- Conjunctival inflammation
- Blepharospasm
- Epiphora
- Ocular discharge
- Blepharitis
- Chemosis
- lymphoid follicle formation; may accompany systemic disease

Bacterial conjunctivitis

Differential diagnosis

- Intraocular disease
- Allergic disease
- Corneal disease
- Upper respiratory disease (*Pasteurella multocida*)
- Treponema cuniculi
- Foreign body
- Fungal conjunctivitis
- Keratoconjunctivitis sicca (KCS)

Bacterial conjunctivitis

Diagnostics

- Conjunctival scraping and cytology
- Bacterial culture and antibiotic sensitivity
- Nasolacrimal flush
- Conjunctival biopsy and histopathology

Bacterial conjunctivitis

Treatment

- Bacterial conjunctivitis: topical antibiotic ophthalmic solution
- Systemic antibiotics; allergic disease: topical and/or systemic antihistamines
- Foreign body: remove foreign body and address secondary disease
- Fungal conjunctivitis: topical and/or systemic antifungals
- Viral disease: topical and/or systemic anti-viral medications
- KCS: topical cyclosporin or tacrolimus
- Topical lubricants
- Topical antibiotic solutions; systemic disease should be addressed according to each specific condition

Bacterial conjunctivitis

Prognosis

- Varies with inciting cause of conjunctivitis

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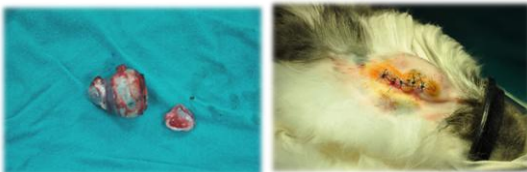
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Enucleation



Enucleation



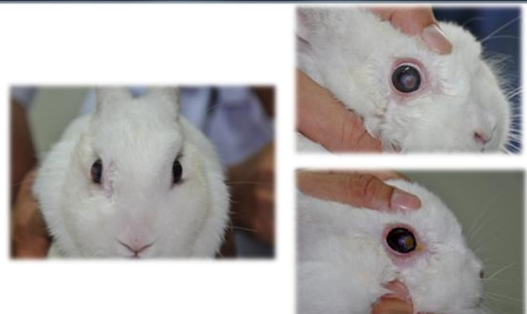
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Corneal abscess

Pathophysiology

- Epithelial migration over a contaminated traumatic corneal
- injury, which then seals
- infectious agents (bacterial, fungal or both) in the underlying stroma.

Corneal abscess

Clinical signs

- Conjunctivitis (inflammation of the bulbar and palpebral conjunctiva)
- with a thick mucopurulent discharge combined with the presence of a white to yellow sub-epithelial plaque, which is a stromal neutrophilic infiltrate
- Sometimes the plaque is surrounded by an intense stromal keratitis and vascularization
- Occasionally, whitish pus material also drains from an epithelial defect
- Uveitis may be present

Corneal abscess

Differential Diagnoses

- Corneal scars (leukoma)
- superficial keratitis
- cataracts (the opacity is located in another structure, the lens)

Corneal abscess

Diagnoses

- Presence of the clinical signs (white to yellow suppurative plaque in the stroma)
- Collect material from the corneal surface with a sterile swab and send for culture and sensitivity tests

Corneal abscess

Treatment

- Intensive topical and occasionally systemic antibiotics (and if indicated, antifungals)
- iridocycloplegics; topical
- Systemic antiinflammatory drugs
- Some cases: surgical drainage of the abscess
- Keratectomy (removal of the superficial layer of the cornea)

Corneal abscess

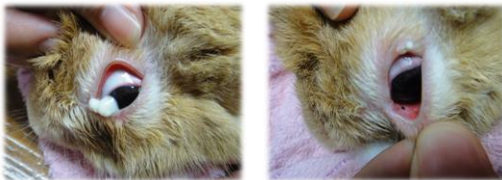
Prognosis

- Good to guarded
- Depending on the intensity of the clinical signs and extension of the stromal suppurative infiltrate

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- Chronic conjunctivitis is a common sequel to [pasteurellosis](#) in rabbits
- The lacrimal puncta gets filled with purulent debris or thickened mucus or occludes as a result of chronic inflammation
- This needs to be flushed on a regular basis to facilitate cleaning the infection

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Dacryocystitis , Epiphora

Clinical signs

- Excessive tear production
- Dried tears on skin and fur surrounding the eye
- Alopecia
- Erythema
- Exudate; related signs may include rhinitis, conjunctivitis
- Exophthalmos
- Obstruction of the nasolacrimal duct

Dacryocystitis , Epiphora

Differential Diagnoses

- Conjunctivitis
- Nasolacrimal duct obstruction
- Myxomatosis

Dacryocystitis , Epiphora

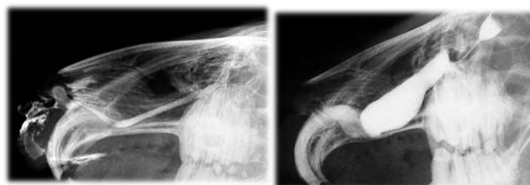
Diagnoses

- Clinical presentation
- Elevated Schirmer's tear test
- Purulent discharge or obstruction of nasolacrimal duct; accumulation of contrast media or dilation of duct on contrast radiography
- Cytologic evaluation
- bacterial culture and antibiotic sensitivity of any discharge

Nasolacrimal passage test



Radiographic Diagnostic



Adapted from Harcourt-Brown F: Dacryocystitis in rabbits. Exotic DVM 4(3):47-49, 2002.

Dacryocystitis , Epiphora

Treatment

- Appropriate topical ophthalmic antibiotic +/-
- systemic antibiotics +/- routine irrigation of
- the nasolacrimal duct; surgical techniques to
- correct the nasolacrimal duct, extraction of
- any problematic incisor

Dacryocystitis , Epiphora

Prognosis

- Varies with disease condition

What is Diagnosis ?



Proptosis

- Exophthalmos is common in Hamster
- It is usually a result of ocular infection or trauma to the periorbital area , or it occurs iatrogenically during restraint
- Hamster with sialodacryoadenitis (cause by cytomegalovirus infection) may develop keratoconjunctivitis sicca , exophthalmos and subsequent proptosis
- Occasionally , a hamster's eye is displaced forward if the caregiver restrains the animal too tightly by holding the skin at the back of the neck

Proptosis

- If the hamster is treated soon after the exophthalmos occurs , then the prognosis for saving the eye is good
- Cleanse the ocular area gently with an ophthalmic wash and lubricate the eye with sterile ophthalmic lubricant
- Gently retract the lid margins around the globe until the eye returns to its normal position

Proptosis

- Treat the eye with an antibiotic ophthalmic ointment for a minimum of 7 to 10 days
- Occasionally , tarsorrhaphy is needed to prevent recurrence
- Enucleation may be necessary if the eye cannot be replaced or if it has been severely traumatized

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Prolapse of the Harderian gland or cherry eye

- This gland has been given several names : **Harderian gland, Harder's gland, nictitans gland, deep nictitating membrane or the medial terms : glandula palpebrae tertiae superficialis or profunda**
- The Harderian glands are sebaceous glands located within the eye orbit, at the nasal base of the third eyelid
- In rabbits, it is composed of 2 lobes :
 - A dorsal white lobe
 - A ventral pink lobe

Prolapse of the Harderian gland or cherry eye

- The **ventral pink lobe** of the Harderian gland sometimes prolapses, leading to a swelling of the third eyelid
- The cause of the prolapse is **unknown**, but suspected to be a **weakness of the connective tissue around the gland**
- The gland starts to move and become irritated
- Irritation leads to swelling and sometimes discharge
- The third eyelid can become bloody and ulcerated, and develops a follicular conjunctivitis

Prolapse of the Harderian gland or cherry eye

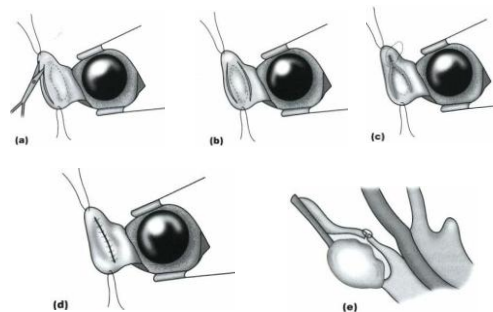
Diagnosis

- The clinical signs are sufficient for a proper diagnosis
- The condition of prolapsed Harderian gland must be differentiated from a retrobulbar fat prolapse
- The **colour and appearance** of the prolapsed tissue should be of help : **pink and lobular for the prolapsed Harderian gland, white for the retrobulbar fat**
- The latter condition is sometimes obese in obese rabbits

Prolapse of the harderian gland or cherry eye

Treatment

- The treatment of a rabbit suffering from a prolapsed Harderian gland is similar as for dogs
- The prolapsed gland is pushed back in its pocket, in a slightly deeper position
- Surgical procedure included removing the gland ,that removal of the Harderian gland led to dry eyes

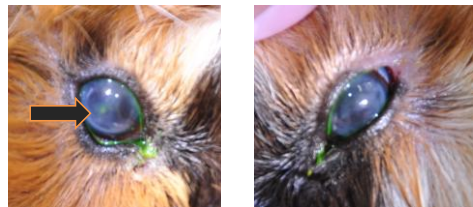


Methods for repositioning the NM gland using the pocket technique

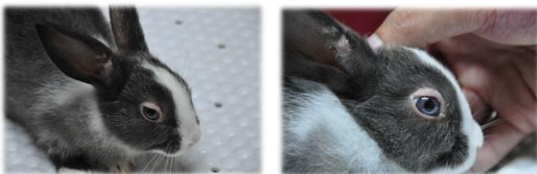
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Hypovitaminosis A (Nutritional disease)

- Hypovitaminosis A (Nutritional disease)
- Is a common nutritional disease in young captive and wild-caught adult chelonians
- Affected animals present with a history of anorexia and inactivity
- On physical examination, chelonians routinely have [bilateral blepharoeidema, resulting from squamous metaplasia of the Harderian glands, blepharospasm, conjunctivitis, blindness](#)
- Pharyngitis, pneumonia, scute loss and hyperkeratosis of the epidermis

Hypovitaminosis A (Nutritional disease)

Diagnosis

- Can generally be made based on a thorough history, physical examination and response to treatment : it is confirmed by measuring plasma retinol levels or liver vitamin A levels
- The therapeutic plan should include parenteral vitamin A, supportive care, including fluid therapy and nutritional support ,and recommendations for correcting husbandry and nutritional deficiencies.

Hypovitaminosis A (Nutritional disease)

- Parenteral vitamin A (aqueous suspension) should be administered subcutaneously at a dosage of 1500-2500 IU/kg
- The dose can be repeated once a week for 2-4 weeks, depending on the severity of the case

Hypovitaminosis A (Nutritional disease)

- Injectable vitamin A should be used very cautiously ,as hypervitaminosis
- A can occur with a single injection (may result in blistering and sloughing of the skin on the limbs)
- A single parenteral injection followed by dietary correction and oral supplementation is commended

Hypovitaminosis A (Nutritional disease)

- It is however, important to recognize that other disease can present with similar clinical signs (e.g. herpesvirus , mycoplasmosis) and that not every animal that present has hypovitaminosis A
-
- This persistent misconception similar to the idea that every rabbit abscess is associated with *Pasteurella multocida* needs to be corrects



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Ferrets

- **Allergies**
 - Allergies cause a ferret's eyes to water and tear
 - The most common cause of allergies is the litter box
 - Avoid using dusty litters or cedar or pine chips
- **Trauma**
 - Because ferrets are small and like to explore they are prone to eye injuries, usually from being poked with a foreign object
 - Ferret proof your home and the ferret's cage by making sure there are no protruding wires, nails or other objects



Ophthalmic diseases in Exotic Pets

Ferrets

- **Cataracts**
 - Cataracts are more common in older ferrets and most likely caused by aging
 - Juvenile cataracts are hereditary
 - Cataracts may be corrected by surgery but eventually lead to blindness
- **Glaucoma**
 - Glaucoma is caused by changes in eye pressure, but it can be difficult to diagnose in ferrets.
 - Usually not caught until later stages of disease



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Ferrets

- Retinal Atrophy
 - is most often seen in older ferrets, although it can occur at any age
 - Retinal atrophy occurs when vision starts out normally and gradually fades over time
 - Eventually the pupil becomes fixed and no longer responds to light
 - There is no known cause for this eye problem in ferrets, but it is possible that it may be caused by a deficiency of amino acid

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Hedgehog

- seem to be prone to corneal ulcers and other ocular injuries
- Diagnosis and treatment is as for other species, although treatment may be difficult if owners are unable to administer topical medication
- Ocular proptosis was a relatively common presenting complaint in one report
- The ocular sequelae to proptosis were severe and resulted in enucleation or euthanasia



Ophthalmic diseases in Exotic Pets

- Moderate to ,marked orbital inflammation was present in each case : sinusitis , neoplasia and fungal elements were not observed
- Hedgehog have a shallow orbital that may predispose them to proptosis , especially if excessive fat accumulation or orbital inflammation is present
- In hedgehog with a unilateral proptosis , tarsorrhaphy may be indicated as a prophylactic measure for the remaining eye

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Sugar glider

- Ophthalmic injuries occur frequently in sugar gliders because of their slightly protruding eyes.
- Corneal scratches with ulceration and conjunctivitis are most common

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Chinchilla

- Traumatic disorders
- Conjunctivitis – irritation of the eyes that results in conjunctivitis without clinical sign of upper respiratory tract infection is often caused by excessive dust bathing
- Dirty or poor-quality bedding and inadequate cage ventilation also can cause conjunctivitis
- Treatment involves restricting dust bath access to 15-30 minutes per day



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Chinchilla (con't)

- Changing the type of dusting powder and applying a protective ophthalmic preparation such as artificial tears or petrolatum ointment
- If the condition does not respond rapidly, additional ophthalmic evaluation is recommended



Ophthalmic diseases in Exotic Pets

Chinchilla (con't)

- **Dust bath**
- Access to a dust bath should be provided daily , if possible , or at least several times per week
- Sanitized chinchilla dust obtained from various web-based chinchilla supply stores
- The dust is placed at a depth of 2 to 3 cm in a pan, such as a plastic dishpan , that is big enough for the chinchilla to roll around in



Ophthalmic diseases in Exotic Pets

Chinchilla (con't)

- Dust bath (con't)
- A Chinchilla may spend up to an hour dust bathing, rolling and fluffing its fur
- The dust bath can be kept clean and free of feces by removing it from the cage after use
- Excessive use of dust baths can lead to conjunctivitis , especially in young chinchilla

Reference

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Thank you for Attention

Any Question ??

