Introduction to Dermatology in the Exotic Animal Planet

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April 2024

Introduction

This article aims to give a general overview of common dermatologic conditions in exotic companion mammals. Additional resources are listed below and should be utilized for more in-depth cases.

Rabbits

Bacterial: Rabbits can develop a number of different types of bacterial infections, requiring veterinary care. Some, such as pyoderma, can be similar to the presentation in dogs and cats, while others are more species-specific. Pyodermas can develop in rabbits for many reasons, including obesity, renal disease, improper diet, improper flooring, and exposure to ectoparasites. Specific conditions such as rabbit syphilis, caused by *Treponema paraluiscuniculi*, are species-specific and nonzoonotic. This is a venereal disease, spread by direct contact with infected skin or vertically from the dam to kits. Pododermatitis, also known as ulcerative pododermatitis or sore hocks, is a chronic condition involving the plantar surface of the foot. This typically leads to avascular necrosis, granulomatous, and ulcerative dermatitis. Unclean conditions and improper flooring, such as wire bottom cages and cement or hardwood flooring, can contribute to this. Obesity and keeping a doe intact can lead to the development of a large dewlap. This is a common site for moist dermatitis, especially for rabbits that drink from a bowl rather than a water bottle. An uncommon condition, occasionally associated with a large dewlap and excess salivation, is Necrobacillosis, or Schmorl's disease. This condition is caused by *Fusobacterium*

necrophorum, an anaerobic gram-negative bacteria commonly found in the GI tract. Symptoms can include abscesses, ulcerations, and necrotic lesions. Surgical debridement and procaine penicillin G are often used to treat this condition.

Psoroptes cuniculi, the rabbit ear mite with secondary scaling and crusting of pinna

Fungal: The most common fungal infection noted in rabbits is Dermatophytosis. While often asymptomatic, this condition can lead to alopecia and pruritus on the head, limbs, and nail beds. Unlike dogs, the causative organism in rabbits is typically *Trichophyton mentagrophytes*. Regarding diagnosis, it's important to know that, unlike *Microsporum* spp, this organism will not fluoresce under a Wood's lamp. This condition may be zoonotic, so it's always important to ask owners if anyone in the household has developed any skin lesions.

Parasitic: Ectoparasitism can be seen in both indoor and outdoor rabbits, although outdoor hutches certainly increase the risk of exposure. *Psoroptes cuniculi*, the rabbit ear mite, causes intense pruritus of the ears and crusting, erythema, and head shaking. *Cheyletiella parasitovorax*, known as walking dandruff, is the rabbit fur mite. This mite is non-burrowing and visible to the naked eye. While most infections are not severe, advanced symptoms can include crusting, scaling, alopecia, and possibly mild pruritus. This parasite is considered zoonotic and can cause pruritic dermatitis in humans. Several types of fleas can affect rabbits, especially those kept outdoors. *Spillopsyllus cuniculi*, *Ctenocephalides felis*, and *Odontopsyllus multispinous* are commonly identified in affected animals. Myiasis typically occurs in rabbits housed outdoors, although this is occasionally seen in indoor rabbits kept in suboptimal conditions. Flesh fly larvae, *Wohlfahrtia vigil*, hatch from eggs and colonize the area around wounds or soiled, moist skin folds. As the larvae molt, they become more destructive to the tissue, causing necrosis, secondary bacterial infection, and inflammation. Treatment typically involves physical removal of the maggots, medical management for the parasitism, and secondary infections. Advanced cases carry a guarded prognosis.

Viral: Shope Papillomavirus, also called Rabbit Papillomavirus, is a member of the Papovaviridae family. This virus is spread by arthropods, making outdoor rabbits a higher risk for infection. This virus typically affects wild cottontail rabbits but can also affect domestic rabbits. Symptoms typically include wart-like, keratinized lesions on the ears, eyelids, neck, and shoulders. These lesions may resolve or advance to squamous cell carcinomas after a few months. This progression is much more common in domestic rabbits than in cottontails.

Advanced case of sebaceous adenitis in a rabbit

Cutaneous Neoplasia: While not overly common, several different types of cutaneous neoplasia have been reported in rabbits. Trichoblastomas are the most frequently identified non-viral associated cutaneous neoplasm, but others such as squamous cell carcinoma, trichoepithelioma, sebaceous cell carcinoma, apocrine carcinoma, and malignant melanoma are also seen. Surgical excision is often recommended to treat these conditions, although chemotherapy and radiation therapy may be indicated.

Sebaceous Adenitis: This condition has been identified in several rabbit breeds, although a cause has not been determined. Clinical symptoms begin as scaly dermatitis around the head and neck and can progress to diffuse flaking and alopecia on the entire body. Histopathology shows a replacement of sebaceous glands with perifollicular lymphocytic infiltrate. Hyperkeratosis, follicular dystrophy, and perifollicular fibrosis are also commonly noted. While the cause of this condition is unknown, it may be linked to thymomas in rabbits, which are seen more commonly in this species than in other companion animals.

Rodents

Bacterial: While not common, primary bacterial pyoderma can develop in guinea pigs and chinchillas. Dental disease, causing excess salivation, can lead to a moist dermatitis and secondary infection as well. *Staphylococcus* spp are often isolated from these infections. Addressing the primary dental disease is crucial for treatment success. Rats seem somewhat resistant to Staph skin infections, but these can be brought on by intense pruritus secondary to ectoparasitism or abscess formation. Gerbils are unique because they seem to develop nasal dermatitis secondary to excess porphyrin secretions from the Harderian gland. This may be brought on by overcrowding or other stressful events. Similar to rabbits, guinea pigs, and chinchillas are also prone to pododermatitis. Soiled bedding, wire bottom enclosures, improper diet, and obesity may all contribute to the development of this condition. Mild cases may

involve erythema and inflammation of the palmar and plantar surfaces, while more advanced cases will progress to ulcerations and granulomatous swellings. *Staphylococcus aureus* is the most common bacteria cultured from these lesions. Treatment and correcting potential husbandry issues often involve antibiotics, analgesics, nonsteroidal anti-inflammatory drugs, and potentially vitamin C supplementation for guinea pigs. The spread of the infection into the tendons, joints, and associated bones requires antibiotic therapy for several months and possibly surgery. This degree of infection carries a guarded to poor prognosis.

Fungal: Dermatophytosis is a condition that most often affects young or immunosuppressed rodents, although it can be seen in animals of any age. Group housing at pet stores, as well as the ability of the organism to survive in the environment, can contribute to the spread. Mild lesions can appear as scaly, patchy areas on the head, feet, and around the ears. More advanced cases will have areas of alopecia, with crusting and inflammation. These lesions are typically pruritic. *Trichophyton mentagrophytes* are most often isolated in these species although *Microsporum* spp can also be present. Diagnosis can be made using cytology, culture, or PCR testing. Treatment may involve topical miconazole or enilconazole for small lesions or oral antifungals for more disseminated cases. Cleaning the environment and isolating affected animals will reduce the risk of reinfection. This organism is potentially zoonotic, and the owner should be made aware of this when it's diagnosed.

Parasitic: Guinea pigs are susceptible to a number of ectoparasites, including mites, lice, and rarely fleas. The most common mites identified in guinea pigs are *Trixacarus caviae* and *Chirodiscoides caviae*. *Demodex caviae* and *Sarcoptes* spp are occasionally seen as well. *T. caviae* causes extreme pruritus that may result in self-trauma due to intense scratching. This can lead to secondary infections and scabbing. Louse infestations, typically caused by *Gliricola porcelli* or *Gyropus ovalis*, tend to cause less dramatic skin lesions and pruritus. Animals will usually present with thinning fur or areas of alopecia, crusting, and an overall dull coat. While not common, flea infestations have been reported in guinea pigs. *C. felis* is the most common flea seen and are typically spread from another animal in the house. Treatment should be based on the parasite identified and any secondary infections or inflammation that may be present. Ectoparasitism appears rare in chinchillas and is thought to be impeded by their very dense coat.

Neoplasia: Trichofolliculomas are the most common skin tumors of guinea pigs. They are benign and tend to be located on or near the scent gland. These tumors can grow quite large and occasionally develop

centrally located ulcerations, which give way to secondary infections. Surgery is typically curative. Other neoplasms, such as lipomas, liposarcomas, and cutaneous lymphoma, are also commonly seen. In the case of lymphoma, these are typically multicentric, and the prognosis is generally poor despite treatment.

Hedgehogs

Bacterial: Primary bacterial skin infections are not commonly reported in hedgehogs, but they can be seen secondary to ectoparasitism, unsanitary conditions, or possibly due to an allergic dermatitis, although this is considered rare. A single case of pemphigus foliaceus has also been reported, with spine loss, erythema, and epidermal collarettes on the ventrum. This case was treated with dexamethasone injections over 16 months.

Fungal: Like other exotic companion mammals, Dermatophytosis is the most common fungal infection in hedgehogs. *Trichophyton erinacei, T. mentagrophytes*, and *Microsporum* spp are routinely cultured. Culture and PCR testing are used for definitive diagnosis.

Parasitic: *Caparinia tripilis* and *Chorioptes* spp are typically implicated in hedgehog infestations, although *Notoedres cati* have also been identified. Symptoms of mite infestation typically include spine loss, flaking, hyperkeratosis, and seborrhea. Identification is made using a tape prep or direct mount with mineral oil. Fleas, *C. felis*, may be passed from a household dog or cat to the hedgehog.

Neoplasia: Neoplasia is very common in hedgehogs and can involve almost any system in the body. Some of the more common tumors associated with the skin are squamous cell carcinoma, cutaneous mast cell tumors, mammary gland tumors, and cutaneous hemangiosarcoma. Diagnosis of these would typically involve a fine needle or excisional biopsy.

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