WORKING UP PRURITUS AND SKIN DISEASES

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Skin diseases are common in exotic companion mammal medicine. Some of the diseases are infectious, with potential transmission towards the owners, while others have a metabolic etiology. A list of commonly found dermatologic conditions in exotic companion mammals can be found in Table 1. The approach to skin diseases in exotic companion mammals is similar to that of skin diseases in other companion animals.

SIGNALMENT Before being able to establish a diagnosis it is necessary to know some basic background information of your patient. It is foremost important to know what species you are dealing with. Certain diseases, such as syphilis, are very common in one species, while they are seldom diagnosed in other species. Sex predilection is also important for certain dermatologic conditions (eg, symmetric alopecia in female Guinea pigs with cystic ovaries). Another important factor is age. A study among Dutch ferrets has shown that symmetric alopecia and swelling of the vulva in female ferrets under the age of three is most likely due to a functional remnant ovary, while in ferrets over 3 years of age hyperadrenocorticism is more likely.

HISTORY

As with all patients, a thorough history provides you with very valuable information. Important questions that should be asked are:

- Where and when was the animal purchased? Certain dermatologic diseases are seen at an early age and most often directly after purchase (eg, dermatophytosis, the different types of mange and Treponema paraluis cuniculi).
- Does the animal have pruritus? With this question you can general differentiate between an infectious cause (bacterial, parasitic or fungal infection) and a metabolic cause (often hormonal). Infectious diseases are commonly associated with pruritus, while animals with a hormonal skin disease do not have pruritus. It is good to realize that hyperadrenocorticism in ferrets is an exception to this rule. Although pruritus is a common finding in this condition, it is not known what the triggering factor is for the pruritus.
- Do any of the other animals (if present) or any person in the household also have cutaneous symptoms? With this question you will also get an indication whether you are dealing with an infectious cause. If lesions are seen in persons in the household, it is likely you are dealing with dermatophytosis, although ectoparasites in humans may result in self-limiting erythematous papules as well. Children especially are sensitive in developing skin lesions due to dermatophytosis which may be located on the hands, arms, and in the neck. The latter is often seen when rabbits are carried against the body of the child.
- What is the progression of the disease? Are the clinical signs static, are they constantly getting worse, or are there periods of improvement? Dermatophytosis for instance may be self-limiting, with flare-ups during times of immune suppression.
- Has any medication been given to the patient? This may either be to treat or prevent the skin disease, but may also be unrelated to the cutaneous lesions.

<table>
<thead>
<tr>
<th>Species</th>
<th>Skin Disease</th>
<th>Pruritus?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea pig</td>
<td>Trixacarus caviae</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Chirodiscoides caviae</td>
<td>Yes (mild)</td>
</tr>
<tr>
<td></td>
<td>Trichophytont mentagrophytes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Trichofolliculoma</td>
<td>No</td>
</tr>
<tr>
<td>Rat</td>
<td>Notoedris muris</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Myobia musculi</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Myocoptes musculinus</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Radfordia affinis</td>
<td>Yes</td>
</tr>
<tr>
<td>Rabbit</td>
<td>Psoroptes cuniculi</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Treponema paraluis cuniculi</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Cheyletiella parasitivorax</td>
<td>Yes (mild)</td>
</tr>
<tr>
<td></td>
<td>Trichophytont mentagrophytes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Pododermatitis</td>
<td>No</td>
</tr>
<tr>
<td>Ferret</td>
<td>Otodectes cynotis</td>
<td>Yes (sometimes)</td>
</tr>
<tr>
<td></td>
<td>Hyperadrenocorticism</td>
<td>Yes (sometimes)</td>
</tr>
<tr>
<td></td>
<td>Microsporum canis</td>
<td>Yes (mild)</td>
</tr>
</tbody>
</table>
PHYSICAL EXAMINATION
Cutaneous signs may be a reflection of systemic disease. It is therefore mandatory that in every patient which is presented with skin disease a physical examination is performed.

DERMATOLOGIC EXAMINATION
After an inspection of the animal from a distance, a closer inspection of the hairs, skin (including the pinnae), and mucous membranes is performed. Attention is paid to the quality of the hairs; is there (symmetric) alopecia, or are any broken hairs found? Are any lesions present? If so, how should they be characterized (papule, pustule, vesicle, wheal, nodule or tumor)? Are there any scales or crusts present? Are there signs of hypo- or hyperpigmentation? All lesions should be recorded in the file, which can then be used as a reference at return visits.

Specific Tests
Deep skin scrapings are performed in the majority of dermatological cases in search of a parasitic infestation. Scrapings should be performed in at least three different locations. Cytologic evaluation of the skin is possible by performing either direct impression smears, or tape preparations. The latter is commonly used to diagnose the yeast Malassezia spp. We have frequently attempted to find this yeast in association with hyperadrenocorticism in ferrets, but did not succeed.

To determine if the patient is infected with superficial ectoparasites (eg, lice and fur mites) the fur can be vacuumed while a tissue is held in front of the hose. The collected material can then be examined under a stereomicroscope or placed on a slide with KOH for evaluation under a regular microscope.

For direct visualization of ear mites in ferrets and rabbits it is most often sufficient to look into the ear with an otoscope or endoscope. In the author’s experience, however, mites can be missed. In case no mites are seen, it is necessary to collect some cerumen and exam this under a microscope.

A Wood’s lamp is seldom of use in exotic animal medicine. The great majority of fungal diseases in this group of animals are caused by Trichophyton mentagrophytes which is not detected by the Wood’s lamp.

The most successful way to diagnose fungal infections is by using the McKenzie toothbrush method. For this technique the hair is brushed with a new toothbrush after it has been taken out of its sealed package. The brush may be sent directly to an official lab, or the hair and scales which were caught in the tooth brush are brought onto a culture medium. Sabouraud’s agar to which a color indicator is added (Dermatophyte Test Medium [DTM]) is commercially available enabling in-house testing. In case of dermatophytosis the agar will change color during the growth of the fungus. This test method, however, does not enable you to differentiate between the different dermatophytes.

When all tests are unsuccessful in determining the cause of skin disease, a skin biopsy is the next step. Specific biopsy punches are available to obtain high quality skin biopsies with sharp borders. I prefer to bring all patients under general (isofurane) anesthesia to obtain the biopsies, but in docile animals local anesthesia can also be used. Be careful with local anesthetics such as lidocaine, as most standard preparations have a high concentration of the active ingredient which may easily result in an overdosage (stay below 4 mg/kg BW). To obtain the best results, multiple biopsies (from different stages of the disease) should be taken within the border of the lesion. At the border most of the active process is ongoing which will provide the pathologist with extra information.

In case of skin tumors, such as trichofolliculomas in guinea pigs and sebaceous epitheliomas in ferrets, the entire tumor may be removed and sent in for histological examination.

The etiological agent for syphilis in rabbits is Treponema paraluis cuniculi. The typical lesions are found on the nose and in the anogenital region. Although the clinical signs are very suggestive of the disease, confirmation is not easy with any of the above described techniques. In these rabbits, serology is necessary to confirm your diagnosis. It has been described that the spirochete can be visualized with special silver stains in a biopsy. Serology, however, is the preferred method of diagnosis.

Allergies
In dogs and cats allergies are responsible for a great deal of the dermatologic cases seen in practice. In a ferret a food-related dermatological case has been reported, which responded to a commercial hypoallergenic diet for cats. The author has also seen a ferret with severe alopecia and pruritus. This ferret was initially suspected of hyperadrenocorticism, but all diagnostic tests could not confirm this diagnosis. After the owner changed the diet from a commercial cat food into a commercial ferret food, complete resolution of all signs occurred.

Alopecia, crust formation, and erythema can be seen in rabbits on all four feet, while no dermatophytes can be cultured. Thus far no cause for this clinical presentation has been reported. Although no hypoallergenic diets are available for rabbits, the author has seen improvement of clinical signs in these cases after placing the rabbit on a diet containing only hay and vegetables.

No intradermal skin tests have ever been described in exotic companion mammals.

NON-TYPICAL PRESENTATION OF DERMATOLOGICAL CASES
In our clinic we frequently have Guinea pigs presented with anorexia as their main complaint. As dental disease is high on the differential list for anorexia in this species an oral examination is required. Except for the expected cases of dental disease, we frequently see that the Guinea pig has hairs between the teeth and gingival. These Guinea pigs often do not have any signs
of dental disease. The owner, in these cases, will often mention within the history that the animal licks its fur. The latter is a sign of mild pruritus, and prompts us to vacuum the fur in search for *Chirodiscoides caviae*. In case this fur mite is not found, a McKenzie toothbrush hair sample should be collected. Although *Trichophyton mentagrophytes* usually gives severe pruritus, cases with mild pruritus are also seen.

**Example Case: “Speedy”**

Speedy is a 4-year-old, male rabbit which was found in the wild at a very young age. His weight is 1.5 kg and is housed together with two other pet rabbits.

At first presentation he had a history of progressive alopecia, scaling, pruritus (in the form of licking the paws), thickening of the skin, and becoming less active. Since the rabbit did not want to be touched anymore, it was believed that the skin was very painful. This had been going on for at least 2 months. The two other rabbits, as well as the owner did not have any cutaneous complaints. The practitioner had performed multiple skin scrapings, but did not find any burrowing mites. Treatment with ivermectin also did not improve the condition. A fungal culture was inconclusive and it was decided to treat this rabbit with griseofulvin (25 mg/kg q24h). Improvement was seen and treatment was discontinued after 7 weeks when all signs seemed to have resolved. One month later, however, all clinical signs reappeared and treatment with griseofulvin was unsuccessful.

Clinical signs at presentation consisted of scattered alopecia of the entire body, spots of crusts and scales over the entire body with strong emphasis on the pinnae, and erythema on the abdomen (Figure 1). Again, skin scrapings as well as a vacuum sample did not reveal any mites and it was decided to take multiple skin biopsies. Pending the results the animal was treated with prednisolone (for possible autoimmune dermatosis), trimethoprim/sulfamethoxazole (for secondary bacterial infection), and fenbendazole (as precaution against *E. cuniculi* due to the prednisolone treatment). The initial histological result was: perivascular and interstitial dermatitis, with crusts suggestive of an allergic dermatitis. It was not considered to be typical of an autoimmune dermatitis. We then asked the pathologist to consult a pathologist with a specific interest in dermatology and ask if this would fit within the disease: sebaceous adenitis. The final diagnosis indeed was a chronic manifestation of sebaceous adenitis, as the biopsies did not contain any sebaceous glands.

**CONCLUSION**

Most dermatologic cases in exotic companion mammals can be diagnosed by taking skin scrapings, fungal culture, and vacuuming the fur. If these tests do not result in a diagnosis, it is advised to take skin biopsies and treat on the basis of these results.

**SUGGESTED FURTHER READING**


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Figure 1. A 4-year-old rabbit with scattered alopecia, crust formation, thickening of the skin and erythema. Skin biopsies revealed that this rabbit had a chronic form of sebaceous adenitis.