Describing the Distribution Pattern in Canine and Feline Parasitic Dermatoses

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Abstract

Background: In dermatology, the distribution of the lesions is a major clue for the diagnosis of skin changes in canine and feline patients.

Methods: In this review, we focus on the importance of distribution pattern of different types of skin lesions in the diagnosis of canine and feline parasitic and non-parasitic dermatoses. This study thoroughly investigated and analyzed the pattern of injuries caused by parasitic and non-parasitic dermatoses, using schematic images to display the different stages of injuries accurately. We, therefore evaluate the skin and hair coat, identify primary and secondary lesions, note distribution pattern and configuration of lesions, evidence of pruritus and the presence of ectoparasites or debris.

Results: In cats, *Demodex* mites are often missed because they can be tricky to diagnose. *Otodectes cynotis* (not only cause itching inside the ears but can also cause crusty or inflamed skin around the face. In Pelodera dermatitis, skin problems usually appear on legs, belly, chest, tail, and around the rear end. Most species of fleas move freely around their host's body and can be found virtually anywhere. In dogs with scabies (*Sarcoptes scabiei*), the rash usually starts on the belly, chest, elbows, hocks, and feet. Itching is often severe. In more than 70% of dogs, the face and ears are also affected. Feline scabies, caused by *Notoedres cati*, tends to start at the inside edge of the ears. It spreads quickly to the rest of the ears, face, eyelids, and neck. Canine demodicosis can show up in two main forms. In the localized form, dogs get small bald patches, usually on the face, around the eyes, lips, and sometimes the front legs.

Conclusion: Looking carefully at where and how skin lesions appear is very important for correctly diagnosing skin diseases in dogs and cats.

Keywords: Parasitic dermatoses, Dermatitis, Pattern, Distribution pattern.

Introduction:

In dermatology, the distribution of the lesions is a major clue for the diagnosis of skin changes in canine and feline patients. One should also try to identify the main reaction pattern and to consider all diagnostic hypotheses usually associated with this pattern.

The distribution of lesions often helps in prioritizing differential diagnoses. The clinician should note whether the lesions are localized, multifocal (multiple discrete regions affected such as head, feet, and ventral abdomen) or generalized, and also if the lesions are symmetric or asymmetric. Symmetric lesions usually reflect an internal cause—for example, allergies or an endocrine, metabolic, or immune-mediated disease. Asymmetric lesions are usually a result of infections, certain ectoparasites, or neoplasia. The region(s) of the body affected may provide an additional clue regarding the underlying cause of the skin problem. Terms such as otitis externa, pododermatitis, and nasal dermatitis merely describe the locations of lesions and are not specific diagnoses. For example, the distribution pattern of canine scabies typically involves the ventral portions of the abdomen, the chest, elbows, hocks, and feet. The face and pinna are involved in over 70% of the cases.

Therefore, the purpose of this review study is to investigate and analyze the pattern of injuries caused by parasitic and non-parasitic dermatoses, using schematic images to display the different stages of injuries accurately.

Materials and Methods:

This study thoroughly investigated and analyzed the pattern of injuries caused by demodicosis, using schematic images to display the different stages of injuries accurately. This schematic model helps veterinarians and researchers better understand the patterns in various stages of demodicosis and completely follow the process of skin changes by viewing related images and explanations. These visual and schematic maps offer a suitable method for examining and identifying affected areas, as well as analyzing cellular changes during disease progression. This approach is also efficient for evaluating treatments and formulating disease management plans.

1- Dermatologic examination

To properly diagnose parasitic skin diseases, we need to take a close, hands-on look at the patient. Start by examining the skin and coat carefully — look for both primary lesions (like papules or pustules) and secondary ones (like crusts or lichenification). Pay attention to where the lesions are on the body and what pattern they form. Is the animal itchy? Can you see fleas, mites, or any suspicious debris? Don’t forget to check the ears with an otoscope, inspect the feet, mucocutaneous areas, and even the mouth — parasites can show up in all sorts of places.

1- The process of diagnosing feline and canine dermatoses:

- Evaluation of skin and hair coat,
- Identification of primary and secondary lesionsm,
- Determination of distribution pattern and configuration of lesions,
- Determination of evidence of pruritus, presence of ectoparasites or debris,
- Checking ears (otoscopic examination), feet, mucocutaneous junctions, and oral cavity.

2- When Localization Suggests the Diagnosis

Facial skin lesions in pets can be caused by a number of parasites. In cats, *Demodex* mites are often missed because they can be tricky to diagnose. *Otodectes cynotis* (ear mites) not only cause itching inside the ears but can also cause crusty or inflamed skin around the face. Another important parasite is *Notoedres cati*, which causes feline scabies and spreads quickly if not treated.

In Pelodera dermatitis, skin problems usually appear on parts of the body that touch the ground—like the feet, legs, belly, chest, tail, and around the rear end. The skin in these areas often looks red and may lose its hair, either in patches or completely. Small red bumps can turn into scabs and flakes, and if the animal keeps scratching, it may develop a skin infection. The itching can be mild or very intense, depending on the case.

Most species of fleas move freely around their host's body and can be found virtually anywhere. In general, C. felis seems to prefer the rump and inguinal regions. E. gallinacean has a preference for the facial region. During feeding, the flea releases material into the dermis to prevent blood clotting. S. cuniculi, the rabbit flea, has a preference for the pinna and periauricular areas. Tunga penetrans burrows into the skin and produces significant damage at the site of attachment

In dogs with scabies (*Sarcoptes scabiei*), the rash usually starts on the belly, chest, elbows, hocks, and feet. Itching is often severe. In more than 70% of dogs, the face and ears are also affected.

Feline scabies, caused by *Notoedres cati*, tends to start at the inside edge of the ears. It spreads quickly to the rest of the ears, face, eyelids, and neck. It can also reach the feet and rear end. This pattern may be due to the cat's habits—like grooming itself and curling up to sleep, which helps spread the mites.

Canine demodicosis (caused by *Demodex* mites) can show up in two main forms. In the localized form, dogs get small bald patches, usually on the face—around the eyes, lips, and sometimes the front legs. These spots might look a bit red or flaky but usually don't itch much.

In the generalized form, the problem is more serious. Hair loss can spread across large areas of the body, and the skin may become oily, thickened, or infected. The paws, especially between the toes, are often involved. Dogs with weakened immune systems or genetic risk are more likely to develop this severe form.

Results and Discussion:

In cats, *Demodex* mites are often missed because they can be tricky to diagnose. *Otodectes cynotis* (ear mites) not only cause itching inside the ears but can also cause crusty or inflamed skin around the face. In Pelodera dermatitis, skin problems usually appear on parts of the body that touch the ground—like the feet, legs, belly, chest, tail, and around the rear end. Most species of fleas move freely around their host's body and can be found virtually anywhere. In general, C. felis seems to prefer the rump and inguinal regions. E. gallinacean has a preference for the facial region. In dogs with scabies (*Sarcoptes scabiei*), the rash usually starts on the belly, chest, elbows, hocks, and feet. Itching is often severe. In more than 70% of dogs, the face and ears are also affected. Feline scabies, caused by *Notoedres cati*, tends to start at the inside edge of the ears. It spreads quickly to the rest of the ears, face, eyelids, and neck. It can also reach the feet and rear end. Canine demodicosis (caused by *Demodex* mites) can show up in two main forms. In the localized form, dogs get small bald patches, usually on the face, around the eyes, lips, and sometimes the front legs. In the generalized form, the problem is more serious.

The distribution pattern of lesions in dogs with non-demodectic parasitic skin diseases is marked in the schematic images (Figure 1).

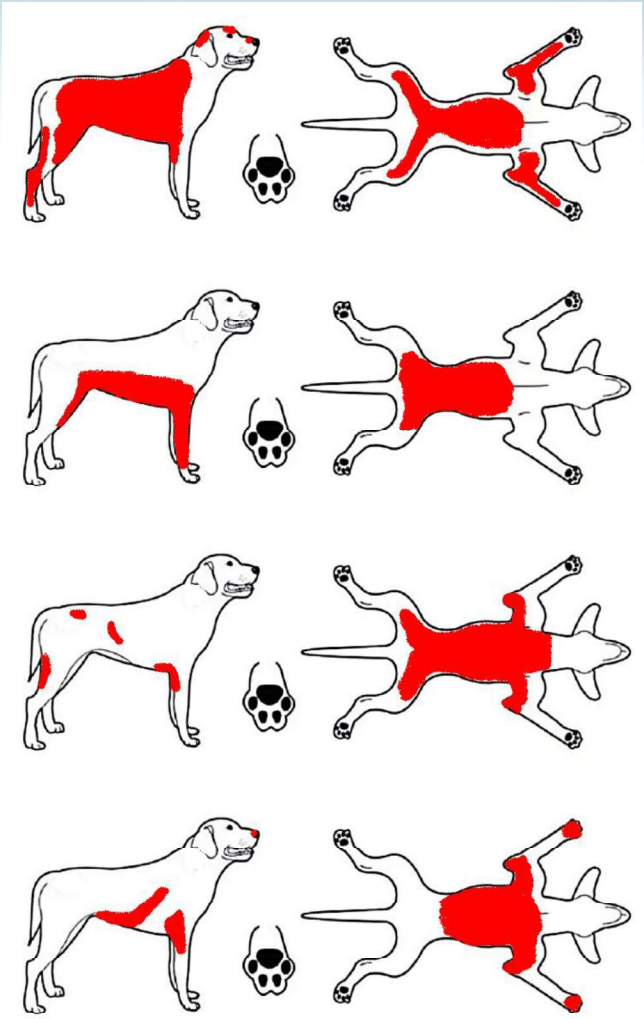

Figure 1. The distribution pattern of lesions in dogs with non-demodectic parasitic skin diseases.

Looking carefully at where and how skin lesions appear is very important for correctly diagnosing some of hair and skin diseases in dogs and cats. However, The results of the present our recently study (Unpublished data) showed that the distribution pattern of skin lesions is not a suitable diagnostic criterion for differentiating dogs suspected of demodicosis dermatosis from other parasitic and non-skin diseases.

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