Canine and feline viral dermatoses

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Viral Dermatitis in the dog and cat
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Viral dermatoses are considered rare in dogs and cats but are also under-diagnosed. These dermatoses are however important because they often belong to the differential diagnosis of major dermatoses such as hypersensitivity in cats and because some of them may be life threatening (poxvirus, FeLV, some papillomavirus infections).

Papillomavirus skin infections

Papillomavirus (PV) are small virus with circular double stranded DNA. They are well adapted to epithelia and their replication is tightly associated to the differentiation of squamous epithelia. PV induce benign warts in dogs and cats but may also be associated with asymptomatic infections or, on the contrary, cancer transformation.

The most common PV infections are the canine oral warts. These lesions usually develop first in the oral cavity, then in the peri-oral skin and sometimes extend to other mucous membranes and haired skin. These warts present with a very typical cauliflower aspect and usually regress after three to four months. One must avoid any premature surgical excision because these interventions are sometimes associated with resistance. No treatment has been proven to be effective.

Several other types of PV-induced warts have been described in the literature (footpad warts, inverted papillomas, adult papillomatoses). These forms are usually more resistant and surgical treatment should be considered whenever feasible.

Dogs may also be affected by PV-induced pigmented plaques. Lesions are dark, slightly raised papules/plaques. Some of them may regress but the great majority develop slowly. Cancer transformation has been described. These lesions are caused by specific PVs. Pugs are clearly predisposed for the infection but cancer transformation has not been observed in this breed.

In comparison, cats are rarely affected by PV and very rarely present with viral warts. On the contrary, they develop lesions resembling viral pigmented plaques. These papules are less pigmented than their canine counterpart but develop more frequently into skin cancer (bowenoid in situ carcinoma). Another PV-induced condition affects sometimes feline: feline sarcomas are the consequence of PV-infection of dermal fibroblasts. This condition presents as small and firm, usually unique nodule. Face and feet may be affected but the more common localisation is the philtrum of the nose.

It seems that feline PV-infection respond better than canine counterparts to antiviral therapy: In fact, imiquimod has been shown to be frequently effective on feline viral plaques and Bowenoid in situ carcinomas.

Distemper and « Hard Pad Disease »:

The incidence of distemper decreased dramatically in the last decades but we still get regularly clinical cases and veterinarians should be aware of the clinical signs of this disease. In the acute phase of the disease, dermatological signs are rare or non specific (pustules). On the contrary, in the late phase of the disease, some dogs develop hyperkeratosis of the footpads and/or the nose. The main differential diagnosis are the congenital naso-planar hyperkeratosis and some forms of leishmaniasis, cutaneous lupus and necrolytic migratory erythema.

Cowpoxvirus infections in cats:

Cowpoxvirus infections are rare in Europe but some spots in central Europe and most other parts of Europe have been well identified. Contamination occurs mostly after a contact with infected rodents but cattle may be also the reservoir. The first lesions are small umbilicated nodules (classical « pock » lesion) occurring mainly on the face and feet. Generalization often occurs with
more widespread often unspecific lesions of the skin and mucous membranes. Most cases resolve spontaneously but immunosuppressed individuals and cats treated with glucocorticoid may experience severe and sometime fatal pneumonia. The condition is very easily diagnosed on histological examination of the affected skin: very typical intracytoplasmic eosinophilic inclusions are seen in numerous keratinocytes. It must be kept in mind that cowpoxvirus infections have a zoonotic potential. Affected cats should consequently be monitored carefully (no glucocorticoids) and owners informed.

**Herpesvirus dermatitis:**

Feline herpesvirus infection affects mainly the upper respiratory tract and the conjonctiva. Some cases of herpesvirus dermatitis have however been described and may be overlooked because they present clinically like a hypersensitivity reaction of the face 10. In most cases, a previous or concomitant classical form is recorded. Affected cats present with erosions/ulcerations of the face. In the early phase of the disease, lesions very often develop in only one side of the face but generalization occur readily. This infection is not easy to treat although some authors claim great success with interferon, imiquimod or famycyclovir treatment. The diagnosis may also be challenging as clinical and histological signs may be unspecific. When PCR analysis of the affected skin is positive, one must keep in mind that this may results from a contamination.

**Calicivirus infections:**

Calicivirus rhinitis, conjonctivitis and stomatitis are well know and affect numerous kittens. Calicivirus are RNA viruses and genetic instability lead to new strains some of them inducing novel clinical presentation. Recently, a very aggressive form was described in Americam and European hospital11. This form was associated with a very mortality in affected cats. A dermatological form has also been described recently. Affected individuals develop usually erosion ulceration of the face (especially nose) along with limb oedema and foot pads erosions and crusts. This form usually resolves spontaneously within a few days.

**FeLV infections:**

FeLV infected cats may develop some skin infections because of the immunodeficiency. But some other forms, directly due to the cytopathic effects of the virus have been described. They present with typical pathological changes (Giant cells (syncytium) dermatoses) and ulceration and/or seborrhoeic changes of the face 12.


