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Some enigmas in equine skin disease

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There is little that distresses owners as much as skin disease in their horses. There are some challenging conditions that occur frequently but which continued to frustrate practitioners and owners alike. This paper will explore 3 of these challenges and also question the dogma associated with each of them.

The equine melanoma is a very common tumour that predominately (but not exclusively) affects grey horses over the age of 8 years. Most tumours occur in the skin but internal organs are commonly affected to some degree. The large majority of melanomas occurring in grey horses are benign (at least in their early stages of development) and may reflect a storage disorder rather than a neoplasm. The majority of tumours become more malignant in pathological and clinical behaviour with advancing time. Tumours that occur in horses non-grey horses (including cremello or albino horses) probably have a higher tendency to be malignant and in a few grey horses a highly malignant form occurs. The perineum and tail are the commonest site for obvious tumours to develop. Melanotic accumulations and genuine melanomas also occur in the wall of the guttural pouches.

Individual isolated tumours (whether ulcerated or not) can be removed surgically with confidence. Laser excision is probably safer than sharp excision but there is no comparative study on this aspect. In a study by Rowe and Sullins (2004) removal was successful but they reported that there was evidence of remote exacerbation of pre-existing tumours that were not removed. They also commented that removal of one tumour in one location did not prevent progression of the disease. However, since from a pathological perspective at least early small tumours are regarded as totally benign removal of the se cannot logically be responsible for distal malignant transformation. It is extremely unlikely that a single surgical interference (or even several) that results in total excision of a single (or multiple) mass(es) will result in catastrophic dissemination of tumours. Malignant transformation in melanomas in other species is an early event and although almost nothing is known about the specific behaviour of the equine melanoma, micro-metastasis will occur long before there is external evidence of malignancy. In the event that the equine melanoma has at least some of the behavioural characteristics of the malignancy in other species, it would be expected that the tumours were already widely disseminated before any interference was warranted for any troublesome individual lesion.

Considering the high prevalence of the disease in grey horses at least, there are remarkably few treatment options. Surgery, cimetidine per os, intrallesional cisplatin (Goetz et al., 1990) and novel intrallesional immunologic methods (Muller et al., 2011) have reported successes and failures.

Of all the species of domestic animals, horses show the greatest incidence of urticaria. Notwithstanding the minor nature of some cases horse owners usually view the disease with alarm. Its clinical manifestations vary from a minor transitory nature to a major, systemic, and possibly even life-threatening problems.

Thoroughbred and Arabians are possibly predisposed to urticaria from inhaled allergens. Recurrent cases are particularly problematical. The aetiopathogenesis is complex with many suggested or identified causes (Littlewood, 2011). Most cases are idiopathic (a specific defined cause cannot be found). Some cases are caused by non-immunological disorders and others have an immunological mechanism.

Onset can be acute or peracute with signs developing within minutes up to a few hours following the instigating factor. Characteristically edematous lesions of the skin or mucous membranes called “wheals” which are flat-topped, papule / nodule with steep-walled sides occur. Typically the lesions will ‘pit-on-pressure’. Individual urticarial lesions vary in size and shape.

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Some lesions have slightly depressed centers (giving them an annular appearance) but no central focus of inflammation (by contrast to insect bites). Pruritus may or may not be present. Some severely affected cases show no pruritus while mild cases with a few lesions sometimes show severe pruritus with extensive self-inflicted trauma suggestive of insect bite hypersensitivity. Hair loss is not usually present unless individual lesions are exudative. Recurrent episodes at random intervals are relatively common (especially when these are due to inhaled or ingested allergens).

Biopsy is often unrewarding and can even be misleading. Self-inflicted/secondary trauma can further complicate biopsy. Specimens are often of lesser diagnostic value because edema fluid leaks out into the fixative. Sections may show non-specific lymphocyte/eosinophil infiltration but are usually very disappointing.

Treatment is often frustrating – recurrence at regular/irregular intervals is common. Initially a detailed history MUST be taken to eliminate the effect of drugs. Usually once this is done food sensitivities are explored by exclusion diets. Intravenous corticosteroids or long term oral prednisolone or dexamethasone can be helpful but the cause is the key! Remove the cause and the disease will disappear!

(Photoexacerbated) pastern and canon leukocytoclastic vasculitis is a recently recognised distinct clinical entity that has probably been misdiagnosed as "pastern dermatitis/dermatophilosis" for many years. It is possible that the condition is a product of environmental changes. Mature horses are usually affected without sex predilection. The non-pigmented extremities are most frequently affected (and particularly then lateral aspects of white hind limbs) and the disease usually occurs in summer in regions with strong sunlight exposure.

The aetiopathogenesis is uncertain, but IgG deposition and/or C3 portion of complement have been detected in the earliest stages by direct immunofluorescence of affected vessel walls. Percutaneous absorption has not been ruled out, but non-pigmented skin involvement suggests a role of ultraviolet light. However, the disease is not a true photosensitization. Records of affected horses also indicate no known contact with photosensitizing compounds and liver function is usually normal.
Interestingly individual horses are usually involved and the most characteristic lesions occur on the lateral (and less commonly on the medial) aspects of the pasterns and cannons of non-pigmented hind limbs. The distribution of the cutaneous damage is a feature of the disease. There is an acute onset of erythema, oozing and crusting that is clearly demarcated and restricted to the white areas of the distal limb (and particularly the lateral aspect of the hind pasterns). One pigmented limb may be affected while others show no signs at all. Pigmented limbs are seldom, if ever, affected. In a few cases the muzzle may be involved but this is more usually genuine actinic dermatitis / sunburn).

The condition is more painful than pruritic. Erosions, ulceration and oedema of affected limbs are more extensive than might be expected for the size and extent of the lesion. The exudate takes on a warty appearance and character and removal of the scabs and crusts is quite difficult. Secondary infection with *Staphylococcus* spp., *Streptococcus* spp. and *Dermatophilus congolensis* bacteria is common. An accurate history is an important aspect of the case and its management.

The outward appearance of the disorder may belie the severity and extent of the inflamed skin, which can only be truly appreciated by close clipping of the hair. The oedema can sometimes be quite severe. Removal of the crust and the matted hair reveals an inflamed area of skin (often this is roughly circular) restricted to limited areas of the pastern and cannon skin. The remarkable distribution of the dermatitis is a feature of the disorder. Most often the lateral aspects of a hind leg are most affected and quite often there is an area just under the fetlock that is remarkably free of any pathology. Other cases have a more generalised lateral and medial inflammatory dermatitis. The plantar (palmar) and dorsal aspects are much less often involved.

Close clipping and a single antibacterial wash with a chlorhexidine shampoo is advised with strict avoidance thereafter of exposure to sunlight and the pasture involved. High (immunosuppressive) doses of corticosteroids daily for up to 2 weeks with a gradual withdrawal over 4 weeks and repeated use of emollient cream and keratolytics such as salicylic acid can be helpful. Protection of affected areas from direct or reflected ultraviolet light by stabling in daylight, high factor sunscreens and using leg wraps is helpful.

REFERENCES: