

A recent study has shown that plasma viral RNA concentrations are significantly higher in cats in the AIDS stage compared with cats in the asymptomatic or AIDS-related complex stage (Goto and others 2000). Although plasma viral RNA levels were not assessed in the present study, clinical isolates of FIV were made from each of the infected cats so that viruses isolated from cats with different outcomes may be analysed for features that may be related to their virulence in vivo. In this way it is hoped that more will be learnt about the role of viral factors in the pathogenesis of FIV infection.

#### ACKNOWLEDGEMENTS

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**FIG 1:** Nose of the German shepherd dog showing severe depigmentation, erosion and ulceration of the nasal planum

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and Stannard and others (1975), and since then a small number of cases have been described. Whereas most dogs with pemphigus vulgaris exhibit lesions at the mucosal and mucocutaneous junctions (Scott and others 1987, Carlotti and others 2000), rare dogs are affected with a variant of the disease without oral or mucosal involvement (Scott and others 1982, Olivry and others 1992).

This short communication describes two dogs affected with a variant of pemphigus vulgaris characterised by severe nasal planum erosions and ulcerations reminiscent of other immune-mediated dermatoses, such as cutaneous lupus erythematosus.

Case 1 was a five-year-old male neutered German shepherd dog that was presented with a history of nasal dermatitis suspected of being of immune-mediated origin. Previous treatment with oral and injectable corticosteroids resulted in the partial remission of skin lesions but considerable weight loss. At the time of referral to the dermatologist, the skin lesions included focal painful erosions, ulcerations, crusting, and depigmentation of the nasal planum (Fig 1) and also of the lips, hard palate, scrotum and feet. Samples for serum biochemistry, haematology and urinalysis were within normal limits. Antinuclear autoantibody serology was unremarkable. Upon diagnosis, initial therapy consisted of vitamin E (800 units, every 24 hours), niacinamide and tetracycline (Oxycare; Animalcare) (10 mg/kg, every eight hours), and oral prednisolone (1.5 mg/kg, every 24 hours). This protocol led to a marked decrease in the severity of skin lesions.

After three months, vitamin E, niacinamide and tetracycline were stopped without further deterioration of the clinical signs. The dog has been in partial remission for the past two years with low-dose oral prednisolone (approximately 0.5 mg/kg, every 48 hours).

Case 2 was a one-and-a-half-year-old female spayed Australian shepherd dog with a five-month history of depigmentation and peeling of the skin on the nasal planum. These lesions had rapidly progressed to ulcerations of the nasal planum and perinasal skin. There was depigmentation of the palate. Systemic signs were not present. Haematology and serum chemistry were unremarkable. Before the diagnosis was made, the dog had received a combination of tetracycline and niacinamide (the same dosage as for case 1), which had led to a minimal decrease in the extent of nasal lesions over a period of six weeks. Upon diagnosis of pemphigus vulgaris, the dog was given oral prednisone (0.5 mg/kg, every 24 hours) and doxycycline (Ronaxam; Merial) (10 mg/kg, every 24 hours). This regimen led to complete resolution of the lesions within three months. When the doxycycline was discontinued, nasal

## Nasal dermatitis as a manifestation of canine pemphigus vulgaris

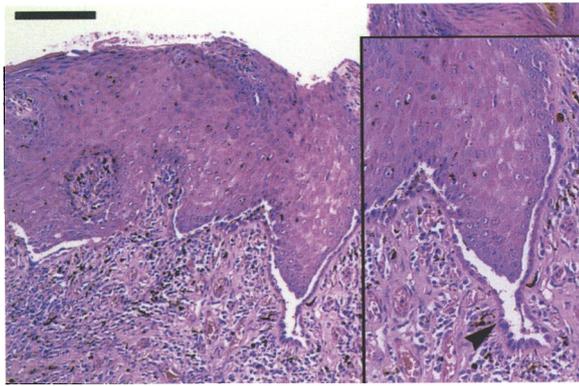
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PEMPHIGUS vulgaris is a rare autoimmune blistering skin disease associated with the generation of autoantibodies that target transmembrane desmosomal proteins in the epithelium. In human beings, early manifestations of pemphigus vulgaris are characterised by a marked predilection of lesions for mucous membranes and by circulating immunoglobulin G (IgG) autoantibodies binding to desmoglein-3 (Amagai and others 1999). With disease progression, the distribution of lesions shifts from mucosal to mucocutaneous, while autoantibodies recognise both desmoglein-3 and desmoglein-1 (Amagai and others 1999). The first cases of canine pemphigus vulgaris were reported by Hurvitz and Feldman (1975)

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**FIG 2: Nasal skin biopsy specimen of the Australian shepherd dog. Acantholysis with resulting cleft formation can be seen above the stratum basale of the nasal epithelium (arrowhead). Lymphocytic and plasmacytic inflammation is seen in the superficial dermis. Haematoxylin and eosin. Bar = 140 µm (low magnification), or 90 µm (high magnification inset)**



ulceration reoccurred. Complete remission was achieved again with the original drug combination. The dog has been in remission for the past two years with doxycycline (same dosage) and low-dose prednisone (0.25 mg/kg, every 48 hours).

In both dogs, histopathological examination of lesional skin biopsy specimens revealed similar findings. Intraepidermal cleavage resulting from suprabasal acantholysis could be detected (Fig 2). A band-like inflammation composed of lymphocytes and plasma cells also was evident in the superficial dermis. Variable pigmentary incontinence and melanophagia were observed, and these lesions were deemed consistent with the diagnosis of nasal-predominant pemphigus vulgaris.

Direct immunofluorescence (IF) was performed on paraffin-embedded skin biopsy specimens of both dogs, and revealed intercellular epidermal deposition of IgG. Keratinocyte-bound immunoglobulin A, immunoglobulin M and C3 were not seen. Serum circulating anti-keratinocyte autoantibodies were detected by indirect IF using normal canine lip as the epithelial substrate. In both dogs, a low titre of IgG autoantibodies was detected (1:100 for case 1 and 1:50 for case 2). To confirm the identity of targeted autoantigens, an ELISA using the recombinant extracellular segments of human desmoglein-3 and desmoglein-1 (Ishii and others 1997) was adapted to the canine species by using anti-canine IgG secondary antibodies as described by Olivry and others (2000). This method established that both dogs' serum contained autoantibodies directed against desmoglein-3 in amounts that exceeded that of a human pemphigus vulgaris serum (114 per cent and 46 per cent of canine pemphigus vulgaris-positive control, respectively, at 1:500 dilution). Conversely, the two sera did not exhibit high immunoreactivity against desmoglein-1 (20 per cent and 5 per cent of canine pemphigus vulgaris control, respectively, at 1:1000 dilution). These findings were considered diagnostic for canine mucosal-predominant pemphigus vulgaris.

In conclusion, both dogs exhibited severe ulceration of the nasal planum, a manifestation that would be suggestive of various skin diseases including several cutaneous manifestations of lupus erythematosus, erythema multiforme, mucous membrane pemphigoid, the uveodermatological syndrome, as well as nasal aspergillosis and epitheliotropic lymphosarcoma. However, histological and immunological investigations were diagnostic for canine pemphigus vulgaris in both patients. This predominantly nasal variant of pemphigus vulgaris, which affects the planum but not the dorsal muzzle, therefore, needs to be added to the spectrum of clinical manifestations exhibited by this disease in the canine species.

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## ABSTRACTS

### Laryngeal paralysis in four German shepherd dogs

FOUR juvenile white-coated German shepherd dogs developed the typical clinical signs, including stridor, of laryngeal paralysis. The paralysis was bilateral in three cases and unilateral in the other, and one of the dogs also had megaesophagus. Surgical treatment was successful in three cases, but one dog had to be euthanased because of intractable regurgitation and aspiration pneumonia. A possible association between the disease and the dogs' white coats is discussed.

RIDYARD, A. E., CORCORAN, B. M., TASKER, S., WILLIS, R., WELSH, E. M., DEMETRIOU, J. L. & GRIFFITHS, L. G. (2000) Spontaneous laryngeal paralysis in four white-coated German shepherd dogs. *Journal of Small Animal Practice* **41**, 558-561

### Adverse drug reactions

A REVIEW article on adverse drug reactions proposed a new definition: 'an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazard from future administration and warrants prevention of specific treatment, or lateration of the dosage regime, or withdrawal of the product'. They are classified into six types (with mnemonics): dose-related (augmented); non-dose-related (bizarre); dose-related and time-related (chronic); time-related (delayed); withdrawal (end of use); and failure of therapy (failure). Though medical, many statements in this review are equally relevant to the veterinary field.

EDWARDS, I. R. & ARONSON, J. K. (2000) Adverse drug reactions: definitions, diagnosis and management. *Lancet* **356**, 1255-1259