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CUTANEOUS NEOPLASIAS THAT PRESENT AS DERMATITIS
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In this lecture I have attempted to present skin tumours which more frequently present to dermatologists than to oncologists. This is not a lecture about “lumps” and “cytology”, rather about skin neoplasias which may truly be misdiagnosed as an inflammatory dermatitis. I firmly believe that wherever possible, oncologists should be consulted for the most up to date treatment options available as although dermatologists may diagnose many of these cases, oncologists are the best trained in the subtle management of most cancers and therapeutic options change rapidly in the world of oncology. From a prognostic point of view, a general rule of thumb used when discussing nodular tumors is that 80% of skin tumors in cats are malignant as opposed to the majority of those in dogs which are benign. The definition of malignant is frequently mistaken to define “metastatic”. Many “malignant” tumours result in euthanasia not because of metastasis, but because of local invasion resulting in an inoperable tumour. Skin tumors covered in this lecture include those which present as alopecia; as scaling / erythema and alopecia and as miliary dermatitis of cats.

1. Skin tumors which present as Alopecia:

This is an uncommon syndrome which is typically presented as multiple, multifocal, scaling, hyperpigmented and alopecic plaques. The head and neck are frequently involved and many cats have multiple generalised lesions. These lesions begin as small hyperpigmented macules with subtle alopecia. They are extremely difficult to identify as a pathologic lesion, until the cat develops several lesions. Then hypotrichosis and hyperpigmented macules are found on careful examination. As these lesions are more typically diagnosed at the scaling plaque stage, I have placed most of the discussion in that section (below).

B. Actinic keratoses
Are relatively easy to diagnose based on their typical anatomic distribution on the sparsely haired, non-pigmented areas of cats and dogs. The typical sites include the ear tips, the periocular area and the sparsely haired skin surrounding the nasal planum and on the dorsal muzzle. In dogs, axillae and flanks are also target sites especially in sunbathers. Actinic keratoses can however also be seen on the dorsum of dogs living in areas with high sunlight exposure such as Cairns, Australia. The lesions at the very earliest stages are raised, erythematous plaques, a subtle and fine scaling follows. These lesions progress to lichenified plaques with fine adherent scale and then to coarser crusting with papules. In dogs commonly, in cats less commonly, these can become secondarily infected and the resultant pyoderma can produce quite a marked inflammation. Crusted papules, crusted plaques and even discharging sinuses may be associated.
2. Skin tumors which present as scaling, erythema and alopecia

A. Epitheliotrophic (T-cell) cutaneous Lymphoma (Mycosis fungoides, MF)

Epitheliotrophic lymphoma or mycosis fungoides is a special variant of cutaneous lymphoma. It is dominantly a T-cell tumour of atypical lymphocytes which are CD3+ positive. This tumour has a strong affinity for the epithelium so that the epidermis and follicular epithelium are typically heavily infiltrated by lymphocytes where the underlying / surrounding dermis may be only sparsely involved. In very early stages, the lymphocytic infiltrate can be extremely difficult to differentiate from that of a non-specific allergic reaction or a mild, subtle *Malassezia* dermatitis. Later in the development of the disease the characteristic intra-epidermal microabscesses (Pautrier’s micropustules) may be found. The tumour development is typically slow, it may be present for several years from start to finish in some animals.

The clinical appearance of mycosis Fungoides varies enormously in animals. Initially however it presents as a subtle, erythematous, scaling and mildly alopecic lesion. These may be solitary or multifocal. In humans this stage may last for more than a decade before developing into plaques and nodules. The later stage – which clinically resembles a mycosis – is the source of the name. The scaly, erythematous lesions are frequently associated with pruritus and very easy to clinically confuse with allergies and other inflammatory dermatoses. The scales and erythema may even encourage a mild secondary overgrowth of *Malassezia* or bacteria, further confusing the diagnosis as they will then partially respond to the appropriately given antimicrobial therapy. This is a slow but variably growing tumour, the transition from scaling and erythema to plaques can occur within months, but can also take more than a year in both the dog and cat. The average survival time following a confirmed diagnosis ranges from 4 to 7 months. Nodules occur in the end stage, at which time in animals a clinical cure is not to be expected.

When many different stages are present on the same animal, the clinical appearance can be highly suggestive of this diagnosis. Biopsy at that late stage should be diagnostic. However, when the lesions are early and there is pruritus with the erythema and scale, the diagnosis can be tricky. At this clinical stage there may be a diagnostic biopsy finding. However there may also be mild interface dermatitis, a lymphocytic exocytosis, a mild superficial perivascular dermatitis with exocytosis …. These are all relatively non-specific findings, often taken in an itchy animal as representing a likely hypersensitivity. In humans there are documented cases of mycosis fungoides arising in sites of chronic allergy. It is possible this is also the case in animals. It is therefore more than theoretically possible that an original diagnosis of allergies may indeed transform into this tumour!
The aim of treatment is not to achieve a clinical remission or even to prolong life, but to improve the quality. Regardless of the treatment, the life expectation remains the same. A number of treatments have been reviewed. In practice, glucocorticoids administered with concurrent retinoids (synthetic Vitamin A derivatives, which are safer, but significantly more expensive) have about the best clinical success. The use of essential fatty acid supplementation at the rate of 3ml/ kg twice a week has been reported to be associated with clinical success. In practice, with a number of dermatologists, this has not been successful. Symptomatic management of the scaling with bath oils and the superficial secondary infections with shampoo therapy will also bring some clinical relief.

This is an uncommon skin neoplasia of older cats (>10 years). Solitary lesions are reported, but the typical presentation is multifocal. The scaling lesions are preceded by hyperpigmented macules with alopecia, these lesions are subtle and frequently not observed by the owners. The alopecic, scaley to crusted lesions are mostly found on the face, neck, shoulders and legs.

This syndrome is not well understood, but 45 % of tested lesions have been positive for papillomavirus on immunohistochemistry. A significant number of cats are FIV positive and these are reportedly more difficult to manage. In addition lesions have been associated with localised demodecosis. Although lesions are typically confined to the skin, metastasis following transformation to malignant squamous cell carcinoma has been reported. This invasive SCC transformation is reported in 17% of cases. An uncommon transformation to basal cell carcinoma has also been reported.

Reportedly successful therapies have included excisional surgery, acitretin 2-3mg / kg q24h (a Retinoid). Local therapy with imiquimod (Aldara 5%, 3M pharmaceuticals, a local human antiviral topical medication) has been anecdotally successful in some cases. This 5% crème is used in humans with genital warts due to papillomavirus. In cats, the oral ingestion of the crème must be avoided through the use of baby suits or E-collars. 5-Flurouracil has been used with success for dogs it is however CONTRAINDIATED in cats due to neurotoxicity.

C. Actinic Keratose
This dysplastic skin lesion presents with scaling and alopecia in the sparsely haired areas of the body. These lesions have the definite potential to develop into squamous cell carcinoma with repeated, ongoing UV exposure.

D. Early squamous cell carcinoma
Although this is an extension of a dysplastic epidermal change, it may occur acutely and not necessarily arise from a chronic lesion of actinic keratosis. Many squamous cell carcinomas are eroded or ulcerated focal lesions which typically develop serocellular crusts, heal partially, lose the crusts and then the cycle begins again. If they move past the clinical stage of erythema and
scaling to erosion and ulceration, then they are typically extending into an invasive squamous cell carcinoma.

3. Skin tumours which present as miliary dermatitis (in cats)

A. Cutaneous mast cell tumours of cats
Are common. (8-15-21% of all skin tumours, depending on the report) and in comparison to dogs are typically behaviourally benign. One presentation is that of either military dermatitis (multifocal crusted papules) or of multiple small papules to nodules (typically less than 1cm diameter). The grading systems one associates with prognosis of canine mast cell tumours do not apply to cats. In cats, “well differentiated and poorly differentiated” tumour categories are used commonly. One “poorly differentiated type” – that has also been referred to as histiocytic mast cell tumour, has a reported age and breed predisposition for young Siamese.
4. Selected paraneoplastic tumours

A. Feline paraneoplastic alopecia. The typical clinical presentation is of an older cat with hairloss on the abdomen and ventral chest and a “shiny” skin. Early cases present with marked scaling and a characteristic feature is of an adherent brown seborrhoea which frequently affects the claw folds, toes and feet / lower legs, but may also occur on the trunk. Malassezia are frequently found in large numbers within this exudate. Cats may be seen to “shake their paws”. These cats may have normal CBC’s and even normal serum biochemistry screens. Many have pancreatic tumors (identifiable with ultrasound). The prognosis is guarded to poor. Histopathology can be useful IF the pathognomonic changes (of a hyperplastic epidermis which has lost the stratum corneum, with miniaturisation of the follicles and possibly a subtle interface change) are present and identifiable. The pathology report may simply read “non specific follicular atrophy”. However, as the follicles on the ventral part of the body are anatomically smaller and sparser, this is not always an easy assessment to make.

B. Paraneoplastic exfoliative dermatitis (Thymoma associated dermatitis).

This is an uncommon syndrome. Cats present with a severe scaling and alopecia which typically begins on the head and neck and may extend over the entire body. Pruritus is a common feature, although the grade of pruritus is lower than the grade of the scale-crust formation. Many of these cases were initially reported in older cats and thymoma was diagnosed. The skin lesions have resolved completely following surgical or chemical treatment of the tumor. There are however anecdotal reports of cases in which no evidence of a thymoma (or any other internal tumor) has been identified.

C. Metabolic epidermal necrosis / Hepatocutaneous syndrome / Superficial necrolytic dermatitis. Although this was originally reported in dogs with diabetes mellitus, it has since been recognised to be more commonly associated with chronic end stage liver disease. An abnormality in amino acid metabolism appears to play a role in the pathogenesis. In humans this syndrome is associated with a pancreatic tumour and the cutaneous symptoms are reversible with the removal of the tumour. This possibility appears to be rare in the dog. The dogs are middle aged to old. The most common presenting complaint is a severe, painful, crusted and cracked / fissured dermatitis affecting the footpads and scrotum. The dogs typically present with skin symptoms before any systemic signs. The main systemic signs are depression and lethargy and are very often apparently related to the pain of the skin lesions – as the dogs will brighten markedly within a short period of time when the secondary infections (which are frequent, severe, superficial and typically involve yeast, bacteria or both) are treated. Diagnosis can be problematic as the liver enzymes in end stage liver disease may be normal and the skin biopsies are not always diagnostic. A characteristic echolucid and echodense pattern can be identified by an experienced liver ultrasonagrapher.
The prognosis is guarded to poor although there are anecdotal reports of dogs responding 100% clinically to the amino acid infusion therapy which is the recommended therapy of choice.