A Review of Dermatological Issues

Yes, it’s still winter in many parts of the country, but spring is right around the corner (we promise!). This issue of the INSIDER takes a look at one of the most common reasons for visits to your clinic or hospital—dermatological issues.

Itching and scratching, midges and mites, allergies and hives—you’ll see most of these visits as the weather warms, so now is a good time for review and preparation.

Also, please be sure to note Animal Health International’s Continuing Education programs and schedule on page 19 and at http://www.animalhealthinternational.com/Events-Page.aspx. All of our programs feature both lab and lecture, and are RACE-accredited. We’d love to have you join us to learn new skills, expand the possibilities for your practice, and earn your CE credits. We limit capacity to ensure a positive experience for all attendees, so be sure to review and schedule soon!
Notes on Mange and Mites
(source: Dr. Ralf S. Mueller, DipACVD, FACVSc)

Scabies
Sarcoptic mange is a contagious disease caused by Sarcoptes scabiei var. canis in dogs and by Notoedres cati in the cat. In our experience it is much more common in dogs. Transmission is usually via direct contact with affected animals, rarely animals can infect themselves from a recently contaminated environment. Clinically non-affected carrier animals occur. The mite does not survive off the host for very long periods of time. The life cycle is accomplished in approximately 21 days.

Clinically, scabies is characterized by tremendous pruritus. Papules, scales and crusts develop at affected sites, typically the elbows, hocks, face and pinnae in the dog and the face, ears and neck in the cat. Occasionally, nonlesional pruritus is caused by scabies mites (Scabies incognito).

Diagnosis is made by superficial skin scrapings. However, as mites may be difficult to demonstrate, therapeutic trials are commonly used to confirm the diagnosis in animals with negative skin scrapings. Pruritus often increases during the first days of therapy due to the dying mites and concurrent glucocorticoids therapy for the first 3-5 days may be useful.

Otodectes cynotis
(Ear Mites)
These are large, white and freely moving mites with four pairs of legs extending beyond the body margin (except the rudimentary fourth pair of the female). The life cycle lasts 3 weeks. The egg is laid with cement sticking it to the substrate. After 4 days of incubation, a 6-legged larva hatches and feeds actively for 3-10 days, rests a day and hatches to the protonymph (8 legs, last pair very small) and later molts into the deutonymph. The adult male attaches to the deutonymph end-to-end. If the deutonymph is a female, copulation will take place and the female will become egg-bearing. Females that were not attached don’t lay eggs. They live for 2 months. Transmission occurs via direct and indirect contact, mites can survive for up to 8-12 weeks in the environment. Fleas are thought to be able to transmit mites and eggs that can adhere to the flea.

The mites feed on epidermal debris and tissue fluid from the superficial epidermis. They cause intense irritation and thick reddish brown crusts in the ears of dogs and cats. Mites are commonly found on other areas of the body, especially the neck, rump and tail. The parasites are highly contagious and especially prevalent in the young. Fifty percent or more of all otitides in cats and 10% in dogs are thought to be caused by ear mites. Infestations of cats vary from country to country with values as low as 3.5% in Australia (!) and as high as 75% in the States.

Cheyletiella (“Walking Dandruff”)
Cheyletiella are large mites (385mcm) that affect cats (C. blakei), dogs (C. yasguri), rabbits (C. parasitovorax) and humans (transiently affected by C. yasguri or blakei). Host specificity is still a controversial topic. Four pairs of legs bear combs instead of claws. The most diagnostic feature is the accessory mouthparts or palpi that terminate in prominent hooks. The heart -shaped sensory organ on genu I is diagnostic for C. yasguri, the cone shaped for C. blakei and the global one for C. parasitovorax.

The yellowish adult mites move rapidly in the stratum corneum but do not burrow. They live on tissue fluid piercing the skin periodically. The ova are smaller than louse nits and are attached to hairs by fine fibrillar strands (not cemented firmly to the hairs as nits). They hatch in 4 days. The 6-legged larva molts to the 8-legged nymph I after 7 days, nymph II after 4 1/2 days and adult after 5 days. The mite is an obligate parasite that does not live off the host for longer than 48 hours (except for females which may live for up to 10 days if carefully refrigerated). The mites are highly contagious, especially to young animals.
The course in small animals is chronic, most severe and generalized in 2- to 8-week old puppies. Older individuals may become asymptomatic carriers. Usually scaling is the only change (due to mites and keratin scales) with none to mild pruritus noted. Cats may develop widespread papulocrustous eruptions and severe pruritus in some cases. Diagnosis is made by tape impressions, superficial scrapings, KOH digestion of debris gathered with a flea comb or fecal flotation samples. Other ectoparasites and seborrhoea are the two major differentials. A hyperplastic, superficial perivascular dermatitis with hyperkeratosis and a variable number of eosinophils is seen on biopsy. Cheyletiellosis is a local disease; it is seen extremely frequently in some areas and very rarely in others.

**Dermanyssus gallinae (Poultry Mite)**
The “red mite” (only red when engorged with blood) attacks poultry, wild and cage birds, dogs, cats, cattle, horses and humans. Its size is 1mm, it lives in nests and cracks in cages or houses and lays up to 7 eggs after a meal. These hatch to 6-legged nymphs that do not feed. After 48 hours these moult to 8-legged protonymphs, another 48 hours later to deutonymphs and two days later to adults. The whole life cycle thus ideally takes 7 days but may last up to 5 months. Most cases in small animals are associated with pets having access to (sometimes old or converted) chicken houses. Thus, taking a good history is essential in diagnosing the disease.

Erythema, pruritus and a papulocrustous eruption especially over the back and extremities can be seen, but generalized severe scaling without pruritus was also reported in a dog. Diagnosis may be made by skin scraping. However, the mites tend to live in the environment and feed at night time. Insecticidal dips or sprays will eliminate the mites, but treating the premises is essential to prevent re-infestation.

**Lynxacarus radovsky (Cat Fur Mite)**
These small mites (0.5mm) have flap-like sternal extensions containing the first two legs, which grasp the hair of the host. The mites are not highly contagious and usually there is little itching. They attach to the hair and give a “salt and pepper” appearance to the dull and dirty coat. Hair is easily epilated, the skin is normal or shows a papular eruption. Diagnosis is made by skin scraping or tape impression.

**Trombiculidiasis (Chiggers, Harvest Mites)**
Chiggers are scavengers living on decaying vegetable material. They are orange-red, the size of a pin and live about 10 months (females may live longer than a year). The eggs are laid in moist ground and hatch to 6-legged red larvae that are parasitic. They feed on the animal (any large animal, small animal or human may be affected), drop on the ground and become nymphs and finally adults. The entire life cycle is complete in 50-70 days. The bites, usually on ground-skin contact areas like the legs, feet, head, ears and ventrum, produce severe irritation and an intensely pruritic, papulocrustous eruption, but may also produce non-pruritic pustules and crusts with secondary scaling and alopecia in small animals. The organisms adhere tightly to the skin. In humans, intense pruritus on the ankles, legs and belt line is seen; the red mite is frequently scratched off. In sensitized individuals urticarial or granulomatous reactions can occur.
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Skin Lesions and their Distribution in the Cat
(source Dr. Claude Favrot, DECVD, MsSc)

Skin semiology is principally based on the history and the observation of the skin lesions, especially primary ones. The cat is somewhat different and more complex because of its character and mode of life.

Many owners, in example, are not able to assess whether their pet is pruritic or not and most of them do not know what it is doing during outside roamings. Additionally, most cats lick their skin lesions leading to prompt destruction of all primary lesions. Last but not least, reactions patterns (combinations of clinical signs or features) are very often observed in this species: These reactions patterns may unfortunately be associated to several causes and are never pathognomonic. For all these reasons, the work-up of the feline skin patients is usually based on the distribution pattern: In fact, the localization of the changes is more important than the lesions themselves.

Primary Lesions

The feline skin patients usually present with one or some of the following clinical signs: Alopecia, crusts, excoriations, and erosions. As most of the alopecia is actually self-induced, they cannot be regarded as primary lesions. In fact, all changes mentioned above are the consequence of the pruritus, the differential diagnosis of which is very extensive.

The observation of true primary lesions such as pustules, bullae or vesicles in the cat is rare. Interestingly however, pustules are very specific in this species and are observed in most cases in association with pemphigus foliaceus.

The term miliary dermatitis refers to the presence of numerous small crusty papules, usually affecting the trunk but sometimes more widespread. These very typical lesions should be regarded as a reaction pattern. In fact, although very often associated with fleas, they are also observed sometimes in cats with hypersensitivities, ectoparasites (cheyletiellosis, demodicosis) or dermatophytosis. After recognizing this pattern, one should consequently look for parasites and fungi and carry out an appropriate flea control. After ruling out these conditions an allergy work-up should be conducted.

Because of their typical localization or morphology, the diagnosis of eosinophilic dermatitis is usually easy. Ventral eosinophilic plaques in example, present as elevated, oozing, reddish, sometimes rather large and coalescing lesions on the abdomen. The main differential diagnoses are skin
tumors such as cutaneous lymphomas, mast cell tumors or mammary tumor metastases. One should consequently first rule out the latter hypotheses using cytological or histological examinations. Before performing any allergy work-up, antibacterial treatment is recommended because some of these lesions respond to antibiotics. Allergy work-up is not always conclusive and some cases remain idiopathic: in such cases, symptomatic treatment with glucocorticoids or cyclosporine is indicated.

When Localization Suggests The Diagnosis...

As mentioned above, the localization of the changes often reveals the cause of these changes in the cat. An excellent example is the so-called eosinophilic ulcer, which always develop in the upper lip, near the philtrum and usually present as a deep but painless ulceration. Although this lesion is very typical, one should exclude squamous cell carcinomas, as well as bacterial or fungal granulomas. When the diagnosis is confirmed, one should explore all hypersensitivity causes (fleas, food, environment), although food intolerances are the main cause of these changes. Another example is the linear granuloma (also belongs to the same eosinophilic complex) which develops as a firm and vertical lesion in the rear aspect of the thighs. Such lesions are almost always associated with hypersensitivity disorders.

Flanks and abdomen are often affected by so-called symmetrical self-induced alopecias. These lesions are not alopecia sensu stricto because they are caused by the licking and consist of broken hairs. It is worth noticing that not all owners identify these lesions as a consequence of a pathological licking. It is consequently always mandatory to begin the clinical examination of feline patients with alopecia by an examination of the hair tips. Broken hair tips should be interpreted as a consequence of the pruritus and prompt a thorough work-up leading the veterinarian to rule out successively ectoparasites, fungi and hypersensitivity disorders. In some rare cases, these changes are associated with psychogenic disorders.

The chin is also frequently affected in felines and two major etiologies cause these changes. Swollen and erythematous chin usually correspond to the diagnosis “fat chin”, which is also an eosinophilic dermatitis while comedones, oozing and crusts are the hallmarks of the so-called feline acne.

Non-traumatic claw bed changes are rather rare in cats. When multiple toes are affected, one should consider fungal and bacterial infection, although two other hypotheses should be considered first: Pemphigus foliaceus is a major cause of purulent changes in this localization and is often associated with lesions occurring on the face, pinnae and around the nipples. Last but not least, metastases of bronchial carcinomas occur sometimes in toes and present as swollen and extremely painful claw beds. In such occur-
Mites, Ticks and Fleas… Oh My!

In elderly or white-colored cats, skin biopsy for histological examination should be performed to exclude skin tumors. Histological examinations are also recommended when auto-immune diseases are on the differentials list, although cytological examination is a powerful tool for the diagnosis of pemphigus foliaceus. As soon as all these conditions have been ruled out, one should begin with the allergy work-up. An adequate flea control must be made to rule out flea infestation or hypersensitivity and elimination diet would be helpful to determine the role of foods in the development of the disease. In some cases, allergy tests such as intra-dermal or serological testing may be helpful to identify offending environmental allergens.

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

Coming up in the INSIDER:

- April - Vaccinations
- May - Flea, Tick & External Parasites
- June - Boarding/Anxiety

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Discussing Dermatological Disease in Dogs
(source: www.suburbanvet.com)

As you know, skin disorders are one of the most common reasons pets visit veterinarians. Use this simple guide to explain various dermatological conditions, and how they are diagnosed before proceeding with a specific course of treatment.

Problems can develop wherever there is skin, including the ears, around the lips, the bottom of paws, and around the anus. Whatever the symptoms, problems with your pet’s skin are hard to ignore. Although the causes are varied, most skin problems make themselves known with one or more of the following signs: itchiness (scratching, licking, chewing, rubbing, scooting-dragging the bottom across the floor, shaking the head), sores, rashes, hair loss or a thinning coat, bumps, seeing fleas or ticks, or noticing a bad smell, even after bathing.

Common Disorders
Common causes of skin problems include parasites (fleas, ticks, mites and lice), atopy (an allergy to things breathed in or absorbed through the skin), food allergy, anal gland disorders (infection, impaction), infection/inflammation (abscesses, hotspots, scabs, ear hematomas, lick granulomas), and tumors (papillomas or warts). Underlying illnesses can also manifest as problems in the skin (i.e. endocrine diseases, cancer).

Parasites
Parasites such as fleas and ticks can be seen directly on the skin. Fleas are tiny (about 1mm) and dark, and usually seen moving quickly on the skin when you part the fur. There is usually flea “dirt” (which is digested pet blood, the flea’s source of nutrition) seen on the skin and throughout the fur. Anytime flea dirt is found, there are fleas on your pet. Anytime there are fleas on your pet, there are or will soon be 1000's of fleas in your house! Both fleas and flea dirt can be found easily by combing your pet with a flea comb (a comb with lots of closely spaced teeth). Ticks are variable in size, ranging from less than a millimeter to over a centimeter just after feeding.

Mites (Demodex, Sarcoptes) and most lice are too
small to see and are diagnosed by your veterinarian using a microscope. Fleas, ticks and mites can transmit other diseases that can be zoonotic (diseases that affect people as well as animals) such as Plague, Lyme Disease, and Scabies. Most lice are species specific and usually do not transmit zoonotic diseases. They are gross, but do not usually cause medical problems for humans.

**Ringworm**
Another skin condition that can be seen in dogs, but is more often found on cats is ringworm, or dermatophytosis. Ringworm is not a “worm” at all, but a fungal infection. This is a highly contagious infection of the skin that is zoonotic (can be transmitted to people from animals) and causes a very itchy, scabby rash and hair loss, or sometimes no symptoms at all. One of the biggest problems with ringworm is that carrier animals (animals that have the fungal organisms in their fur but not the disease so there are no clinical signs) can transmit the infection.

**Atopy**
Allergies to pollens, molds, organic fibers (wool) and other tiny particles found in our environment are extremely common in our pets. Dogs and cats can develop allergies to the same things which we are allergic. Instead of responding as we do with red, runny, itchy eyes, sneezing and sinus problems, our pets usually get itchy skin. They often lick their paws, chew at their skin or start to have problems with their ears (waxy buildup, redness, odor or just shaking their head a lot). Sometimes the only sign you may notice is the fur starts to turn colors, usually a rusty brown. This is due to your pet licking and chewing their fur or increased tearing from the eyes, both of which can indicate that your pet has developed an allergy.

**Food Allergy**
Food allergies can manifest similar to atopy, but often have added gastrointestinal signs such as vomiting, diarrhea or excessive gas. These pets may have chronic (long term, recurrent) ear infections and waxy buildup as the only sign.

**Ear Problems**
Because the ears are an extension of the skin, disorders commonly seen in the skin (allergies, infections) often affect the ears as well. Infections with bacteria and yeast can lead to odor, redness, discharge, pain and inflammation. Excessive shaking of the head and scratching at the ears can lead to an aural hematoma, a swollen external ear flap (pinna). Certain breeds (Cocker Spaniels) are prone to chronic ear problems due to excessive wax production and an exaggerated response to inflammation.

**Anal Glands**
Anal glands are normal scent glands located in the tissue around the anus. They contain a foul smelling material used by animals to mark their territory. Normally, the material is released when pets have a bowel movement. If stools are too soft, or your pet has been constipated, the anal gland material does not empty properly and can buildup inside the gland. This leads to itchiness, causing your pet to lick excessively, scoot across the floor (usually when you have company!), or sit down often with the tail tucked between the legs. Other problems seen when the anal glands do not empty regularly is that the material inside can become too thick. This can lead to a blockage and formation of an impaction or an infection. Signs that this has occurred include a bulge on either side of the anus at about 8:00 and 4:00 position, or you may actually see a small hole with bleeding or drainage, indicating that the gland has ruptured.

**Infections/Inflammation**
Skin infections can be secondary to many primary problems such as parasites, allergies, trauma (bites and scratches from fighting), and tumors. Signs include a rash that is moist and very red, and many small red bumps all over or in little patches. Sometimes you will notice multiple crusts and flakes with the loss of clumps of fur, or you may find a painful swelling or discharge. Usually, there is a bad odor associated with these lesions, a sign that there is an infection with either bacteria or yeast.

Inflammation is the response of tissues to trauma, and inflammatory lesions can be caused by parasites, allergies, or anything that leads to excessive licking, scratching, and self-trauma. Acral Lick Granuloma, or “lick sore” is a common skin disorder in dogs. A large firm, hairless, lump will arise, often on the feet or legs, in pets that constantly lick at the area. Eventually, the spot will become darkened (hyperpigmentation), and the skin becomes rough and thickened (lichenification). Sometimes boredom and anxiety are the causes.

In other dogs, the type of fur they have makes them at risk for developing inflammatory lesions between the toes or on the paws. Folliculitis (inflamed hair follicles), also called interdigital cysts by some, are seen commonly in Labrador Retrievers. They look like small red boils and are often quite painful, and can become infected due to excessive licking.
Tumors
A tumor is a mass of tissue that grows independently from the tissue around it. It can be benign (does not spread to other areas, is stable) or malignant (spreads to other areas). Tumors of the skin are seen more commonly in dogs than cats. Some of the more common tumors seen include papillomas and adenomas which are benign skin growths and mast cell tumors which tend to be malignant (although Boxers tend to get benign mast cell tumors). It is difficult to identify a dermal tumor and determine if it is benign or malignant just by looking at it, this is often why your veterinarian may recommend surgical biopsy to help identify a tumor.

Autoimmune Disease
The immune system, that part of the body responsible for fighting off infections and keeping your pet healthy, can sometimes turn against itself. Autoimmune diseases (diseases where the body attacks itself) specific to the skin include a group of disorders known as Pemphigus. This disorder is characterized by bullous (bubble or bladder like), blisters and crusty pustules on the skin of the nose, paw pads, ears and lips. Another disorder is called Lupus. This disease causes the formation of ulcers, loss of color around the lips and eyes, and hyperkeratosis (over production of the top layers of the skin into a thick, horny growth) of the nose and paw pads.

Diagnosis and Treatment
Diagnosing the cause of skin diseases involves getting an accurate and thorough history. Your veterinarian must know your pet’s diet, including all treats given, medications and supplements you give, grooming products used, and travel history. It is very important to let your doctor know if your pet has been ill recently, and you should be prepared to give as much detail about the symptoms you are seeing as possible. If necessary, bring in labels of medication, supplements and different food or treats so that, together, you will both have as much information as possible to figure out what is going on. If more information is needed beyond the history and physical examination, your veterinarian may recommend blood tests to get information about the overall health and internal condition of your pet, skin scrapes, needle aspirate cytology (looking at cells under the microscope), biopsies, or cultures (growing bacteria in the lab and testing for sensitivity to antibiotics). In some cases, biopsies, special food trials or even a referral to a dermatologist for allergy skin testing may be recommended.

The treatment of skin disease will vary, but will depend on treating the underlying cause at the same time as treating the secondary symptoms. Some simple treatments may involve using bandages or Buster/Elizabethan collars to prevent self-trauma. Most treatments will be based on test results, but often include parasite control (monthly flea/heartworm preventatives), antibiotics, or medicated shampoos and conditioners.

Other useful treatments include anti-inflammatory drugs (drugs to decrease the redness/heat/pain/swelling response), antihistamines, topical ear cleaners and medicated drops, immune suppressive drugs (for autoimmune diseases and atopy), hypoallergenic diets (usually prescription pet foods with a limited number of ingredients) or dietary supplements (omega-3,6 fatty acids), or possibly surgery (to drain abscesses, hematomas, or remove tumors). Some newer treatments involving phototherapy (light therapy) and acupuncture have also shown success in controlling some of the more chronic disorders. In most cases, the prognosis is excellent for providing your pet with relief and restoring comfort, however most skin disorders involve control rather than cure. Because the causes are often chronic in nature, diligence, commitment and constant open communication with your veterinarian are critical to long-term success.

Because the ears are an extension of the skin, disorders commonly seen in the skin (allergies, infections) often affect the ears as well.
Diagnosis and Treatment of Common Equine Skin Diseases
(source: Linda Vogelnest, Equestrian Life)

The horse is no different to other domestic animal species, nor to humans, when it comes to skin disease: skin diseases are common, many different types can look very similar, and some diseases are chronic and very debilitating. People are very familiar with seeing a dermatologist for their own skin problems, and are becoming more familiar with taking their dogs and cats to see a veterinary dermatologist, but are often unaware of the potential of seeing a veterinary dermatologist for skin problems in their horse. Equine dermatology is an expanding field, with new research and more experience around the world increasing our knowledge and understanding all the time. One of the most important goals of treatment in dermatology is to always attempt to confirm a diagnosis first, rather than just treat symptomatically: although many diseases look alike, the most appropriate treatment for them will vary markedly depending on the cause!

Following is an outline of some of the more common or problematic skin diseases we see regularly in equine dermatology practice.

**Atopic dermatitis (atopy)** in the horse, as in humans and small animals, is a genetically-linked sensitivity to environmental antigens (pollens, mold spores, fragments of insects, storage and dust mites). Atopy in people is associated with asthma and hay fever as well as skin disease (eczema, or atopic dermatitis). In horses (and dogs and cats) it is mostly associated with skin disease alone, although it may be important in some cases of respiratory disease (COPD). It is distinct from other allergies, including insect bite and contact allergies: both of which require direct contact of skin with the offending antigen to elicit an allergic response. With atopy the antigens are airborne, and appear to be absorbed both through the skin and through the nose/mouth, making avoidance often impossible. Although this is a complex disease, we know in horses as in people, that many sufferers produce antibodies (specifically IgE antibodies) to some of the environmental allergens they are exposed to. These allergen-specific antibodies sit around on the surfaces of some immune cells (Langerhan’s cells, Mast cells), ready to trigger an allergic reaction on re-exposed to the allergens at a later time.
Clinical features: Thoroughbreds may be predisposed, but atopic dermatitis occurs in many breeds. The typical age when disease first starts is three to five years, but there can be wide variations. This disease is characterized by chronic relapsing itch, which will typically be seasonal (at least initially), and affect areas including some or all of the face, flanks, neck, back, legs, axillae, or groin: often more areas than the back, neck +/- face more typical of summer itch. Skin lesions are mostly caused by self-trauma, varying from mild to severe, and include hairloss (alopecia), scaling, skin wounds and grazes, and with time skin thickening and increased pigmentation. Sometimes hives occur, with or without associated itch.

Diagnosis: Unfortunately, there is no reliable test to make a diagnosis of atopy, which is a little frustrating: in people, dogs, cats and horses this diagnosis is made based on collecting sufficient clinical evidence for the disease AND ruling out other possibilities. The most important mimicking possibilities in the horse include insect bite allergy, external parasites (e.g. lice, chori-optes mites), other infectious agents (drier, less typical forms of ‘ringworm’ or ‘rainscald’), and occasionally contact or food allergies. Intradermal allergy testing is important to identify the relevant allergens for that individual; which then allows us to sometimes introduce measures to minimize exposure to those allergens, and otherwise progress to ‘desensitizing’ (allergy vaccines).

However, as false positive and negative reactions can occur, a positive intradermal test supports a diagnosis of atopic dermatitis, but is not diagnostic alone. A recent research study performed at University of Sydney in normal horses, the most extensive of any similar studies performed around the world, has more clearly identified the ideal concentrations of allergens to use in intradermal testing to help minimise false positive reactions. This allows us to interpret positive reactions, in association with other consistent findings, with much more certainty. Blood allergy tests are similarly helpful in humans for identifying relevant allergens once a diagnosis has been confirmed, however there is a higher risk of false positives.

Treatment: Allergen avoidance/minimization may help (e.g. dust/storage mite allergic horses may improve if not stabled). This obviously requires skin testing first to identify the relevant allergens for each horse, as they do vary tremendously between individuals. Topical agents (shampoos, rinses) to remove allergens, and moisturise skin may help partially. Systemic anti-inflammatories (e.g. steroids) can give short-term relief in some (but not all) horses when severely effective, but have serious potential long-term effects. Antihistamines and fatty acids are safer, although typically less effective options. Allergen immunotherapy (desensitizing or ‘allergy vaccines’) are the ideal option for severe or chronic cases: studies in small numbers of horses suggest 60–70% good response rate, higher than in dogs and cats. This is the only treatment which can stop the allergic response, and has no apparent associated side effects.

Insect Bite Allergy: Classic dorsal orientation of itch and self-trauma lesions typical of this allergy.

Insect Bite Allergy (Summer Itch) is one of the most common causes of skin disease in the horse. It is caused by an allergic response to bites of insects. The insects involved include the classical Culicoides (‘no-see-ums’), and may include other insects such as Simulium spp (black flies) and Stomoxys spp (stable flies). There appears to be a genetic or familial basis to the disease, and recent evidence suggests that early, repeated exposure to Culicoides gnats is, to some degree, protective. The immunological basis to this allergy has been studied around the world: similarly to flea bite allergy in dogs and cats which is also a common worldwide problem, it can be an ‘immediate’ (Type-1 hypersensitivity, involving IgE antibodies) and/or ‘delayed’ allergic response (Type-IV hypersensitivity, involving one of the white blood cells called the lymphocyte) which is a little slower to develop but can be equally as severe.
ally (except in the tropics where it can be all-year-round), often extending for longer periods and being a little more severe each year. As it is common, and occurs at times of insect exposure, a number of unrelated horses in a group can be affected at the same time. Self-trauma lesions predominate, with a distinct dorsal orientation (top-line of the body +/- head): the mane, rump and tail base are classically the major affected sites. It is often a severely irritating and potentially debilitating disease: some horses have behavioural changes or weight loss due to constant irritation.

**Diagnosis:** A definite diagnosis is based on seeing marked improvement following a thorough insect control trial for 4 weeks. We typically recommend a twice daily (ideally dawn and pre-dusk) insect repellent spray (permethrin spray: e.g. Permoxin® is one good option). The spray must be thoroughly applied to the whole body, so does require considerable owner commitment and time to complete adequately. Rugs and hoods can be used to further limit exposure, but will be rapidly destroyed in some highly irritated horses before this disease is brought under control, and are not essential to the trial when the sprays are used thoroughly. Intradermal testing (using Culicoides and other insect allergens) can identify many horses with Culicoides hypersensitivity, but normal horses may also have positive reactions, and some affected horses (especially those with mainly delayed Type-IV hypersensitivity) will have negative skin tests.

**Management/Treatment:** Once a diagnosis of insect bite allergy has been confirmed, the treatment focus should always be insect control. Desensitising vaccines have been used experimentally for insect allergy, with both good and poor responses reported, however their use is poorly validated and best responses were seen with high concentrations of culicoides allergen which is cost-prohibitive for most owners. Insect control on the horse can be catered to the clinical signs: at better times of year and when the horse is comfortable application can be reduced, but stepped-up again when signs begin to recur or weather changes suggest relapse may be imminent. Rugging and hooling are ideal, as they definitely reduce the need for other options. Insect control in the environment can also help: protective housing (Culicoides-gnats can pass through mosquito netting, so only very fine screens are effective), powerful fans can be useful in stables (gnats are not strong fliers), avoidance and drainage of nearby stagnant water sources if possible (gnats breed in standing water and only travel around 1500 feet). Steroids (dexamethasone injections; prednisolone granules) can help reduce initial irritation when severe, but rarely provide effective long-term control at low doses. Secondary bacterial infections will sometimes occur when severe and also require treatment.

**Urticaria (‘Hives’)** is common in horses, and similarly to hives in people can be caused by a wide variety of underlying factors. The term Urticaria refers only to a clinical manifestation (localised or generalized wheals), and thus does not indicate a cause. Occasionally areas of angioedema (regional swelling) occur also. In the horse urticaria has been associated with:

- **Drugs:** penicillin, tetracycline, sulphonamide, PBZ, flunixin, phenothiazine, ivermectin, moxidectin, vaccines
- **Foods:** weeds, pasture plants, hay, nettle
- **Topical products:** sprays, rinses, tack, rugs, detergents
- **Allergies:** atopy, food allergy, insect bite allergy, contact allergy
- **Internal diseases:** infections (bacterial, parasitic, viral); neoplasia
- **Stress/Exercise/Excitement:** recognised in racing/eventing horses at the time of performing
- **Cold, heat, pressure**

As in people with urticaria, 50% cases have no clearly determined underlying cause.

**Clinical features:** There are no apparent age, breed
or sex predilections for urticaria. Individual wheals are transient (last 24 to 48 hours), and should 'pit' or indent with digital pressure (especially early lesions). You can mark the borders of a lesion with a waterproof texta to check this: urticarial lesions should resolve in a day or two, although new lesions may emerge nearby. If suspected individual wheals don’t pit with pressure, or resolve within 48 hours, other causes of nodular skin diseases become more likely (e.g. erythema multiforme, lymphoma, amyloidosis) and biopsy may be indicated. Wheals can vary from discrete small circular spots, to large circular plaques, and occasionally form bizarre irregular patterns which coalesce to cover large areas. Early lesions have normal hair covering, but some hair loss, weeping and light crusting can occur when more chronic. Lesions can occur anywhere on the body, although are especially common on the neck, trunk, upper legs. Sometimes there is associated itch and/or discomfort/pain with lesions, but in many horses these signs are absent.

Diagnosis: Urticaria is usually diagnosed based on the classical clinical appearance: wheals that pit. Determining the underlying cause can often require further investigation. We suggest stopping any recent drug administration or topical product application as a first step, and a full physical examination to screen for other diseases. Allergy investigation is warranted if there is no other apparent cause and the problem is persistent or recurrent: food trials, insect control trials, and intradermal skin testing can all be helpful.

Treatment: Acute cases can be treated, especially when severe or associated with itch or discomfort: short-acting glucocorticoids (e.g. dexamethasone injection, prednisolone granules) are often used and mostly effective. Antihistamines are less commonly used, but are the mainstay of treatment in humans and are typically very effective and safer than glucocorticoids, especially when used longer term. In chronic/unresponsive cases it is important to search for the trigger thoroughly, and modify this whenever possible. Desensitizing ‘allergy’ vaccines have been very effective for cases of chronic urticaria associated with atopy (pollen, dust and storage mite, and/or mold allergies).

Pastern Dermatitis (‘Greasy Heal’) is a very common and poorly understood entity in horses. The most important point to realize is that there is no single cause: pastern dermatitis (inflammation of the skin on the pastern region) has multiple possible causes that often all look alike. The wide range of diseases that can cause pastern dermatitis include:

- **Infections:** bacterial (secondary staphylococcal pyoderma is particular common; dermatophilus and other bacterial infections also occur); fungal (dermatophytes: ‘ringworm’); mites (chorioptes: ‘leg mites’: assume are there in all heavily feathered breeds until proven otherwise!)
- **Contact irritants/local microclimate changes:** e.g. rough plants, medications, repetitive physical traumas, moisture/maceration (often allow secondary staph pyoderma to occur)
- **Allergies:** contact allergens (not just irritants in this case, but true allergic reactions)
- **Immune diseases (rare):** vasculitis, pemphigus

Thus not all cases of ‘greasy heal’ are the same: in fact many are different. Diagnosis requires a thorough skin evaluation as would be indicated for skin lesions in any part of the body, including skin scrapings (looking for mites), surface skin cytology (direct impression smears for moist areas; impression sticky tapes for dry areas: looking for evidence of bacterial or fungal infection), and potentially fungal culture, or skin biopsies, depending on results from the initial tests. The most effective treatment options will only become evident once a clear diagnosis has been established! So my response to the question ‘how do I treat Greasy Heal’ is always ‘First things first: confirm a diagnosis whenever possible, and then we can talk about treatment!’
For More Information...

The organizations that advocate for veterinarians and other animal health professionals have terrific websites that are chock-full of information useful to you and your staff’s career development, current events and topics, official guidelines, procedures and protocols related to animal care, and much, much more.

Bookmark those of most interest to you and your practice, and visit regularly!

American Veterinary Medical Association (AVMA):
  ➤ www.avma.org

American Association of Equine Practitioners (AAEP):
  ➤ www.aaep.org

American Association of Feline Practitioners (AAFP):
  ➤ www.catvets.com

American Animal Hospitals Association (AAHA):
  ➤ www.aaahanet.org

American College of Veterinary Surgeons (ACVS):
  ➤ www.acvs.org

American College of Veterinary Surgeons (ACVS):
  ➤ www.navta.net
Did you know that Animal Health International launched our new website? We did! Animal Health International is always looking to provide new and useful tools to help our customers succeed, and our new website is one of those tools. Visit www.AnimalHealthInternational.com to view our latest event calendar (including Wet Lab and Lecture Continuing Education opportunities), links to important sites such as the USDA, Outbreak Alert (for an updated, resource rich map of outbreaks of equine and other animal diseases), the Compendium for Veterinary Products, and more!

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In this issue of the INSIDER, please meet one of our instructors, Dr. Victoria Lukasik.

Dr. Victoria Lukasik
Diplomate, American College of Veterinary Anesthesia & Analgesia (DACVAA)

Dr. Victoria Lukasik received her undergraduate degree from the University of Arizona and her doctorate in veterinary medicine from Washington State University where she was awarded the Outstanding Senior Student in Medicine and Surgery (across all disciplines) and the Dorothy Eggerman Memorial Compassion Award.

Dr. Lukasik completed her residency in anesthesiology at Cornell University and received her Diplomate status from the American College of Veterinary Anesthesia and Analgesia (DACVAA) in 1997. She has received awards from the American College of Veterinary Anesthesia and Analgesia, American Animal Hospital Association (AAHA), research awards from the National Institutes of Health and the National Cancer Institute, and actively participates on a committee at the National Cancer Institute. In addition, Dr. Lukasik is involved in research at the Arizona Health Sciences Center at the University of Arizona and has published numerous professional articles and contributed to textbooks in the field of anesthesia. She is a nationally and internationally recognized speaker and has been presented with several professional awards, including one for compassion.

Lecture & Lab Events:
Monitoring Anesthesia: Breathing and Capnography
Monitoring Anesthesia: Circulation and Blood Pressure
Monitoring Anesthesia: Electrocardiogram
Monitoring Anesthesia: Inadvertent Hypothermia
Recognizing Patient Trends and Managing Anesthetic Events I
Recognizing Patient Trends and Managing Anesthetic Events II
Management of Anesthetic Events I
Management of Anesthetic Events II

Lecture Events:
Anesthesia of Patients with Limited Physiologic Reserve
Alternative Inductions to Propofol
Anesthesia of the Geriatric Patient
Geriatric Anesthesia
Anesthesia of the Geriatric Cat
Anesthesia of the Pediatric Patient
Anesthesia of Patients with Chronic Renal Failure
Sedation of Emergency Patients
Balanced Post-operative Analgesia
Multimodal Medical Management of Chronic Pain
Multimodal Management of Chronic Pain
Local Anesthetic Blocks for Canine and Feline Dentistry
Acute Pain Management, Trauma and Critical Care in Cats
Animal Health International is very proud of the quality of the Continuing Education programs we offer, and we’d like you to join us! Here is some feedback we’ve received:

“Everything we learned can be directly applied to a clinical or classroom setting. The information was interesting and the speakers were engaging. Being able to network and see others from the veterinary community was also a bonus. The hands-on practice cannot be beat!” -- Rebecca Lange, Veterinary Technology Program Chair at Globe University-Appleton

“Hi Tom! Thanks for sharing the pictures. This weekend was a great value for learning. I am glad I had the opportunity to attend and definitely got my money’s worth.” -- Sherry L. Walters BS, DVM
## 2015 Small Animal Dental Lecture and Labs

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## 2015 Orthopedics Lecture and Labs

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## 2015 Anesthesia Lectures and Labs

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