Skin problems in horses are some of the most frustrating disorders to manage for both owner and veterinarian. Skin problems can disfigure a horse, and even can cause unsoundness. In addition, many skin diseases, such as allergies, have a complex cause so that one easy treatment is not available.

There are many possible causes for a horses skin to be irritated and for a horse to develop hair loss. Hair loss in the horse can be caused by something simple, such as environment and temperature, or it can be caused by an infectious skin disease, such as ringworm that invades the hair follicles of the skin; dermatophilosis, a superficial bacterial skin disease; be the result of scratching due to an allergic skin reaction; or be the start of a cancerous lesion.

There are three phases of hair growth in the horse. There is the growth period (anagen), a resting period (telogen), and a time when the horse sheds as new hair arrives. Generally, it takes three to six weeks for hair to grow after it has been lost, although that time varies in each individual and is dependent on genetics. Horses will shed their hair seasonally as a result of changes in the length of daylight. Adjacent hair follicles tend to be in different phases of the growth cycle, so that no obvious shedding or bare spots are observed. It is important to recognize when hair loss is not part of the normal hair growth cycle. Usually, we will see localized areas of hair loss or abnormal skin.

It is recommended to consults with your veterinarian before trying multiple over the counter products as some can aggravate certain conditions and some are even harmful to the skin. Your vet will work along side you in diagnosis and preparing a treatment plan that works for you, your horse and your lifestyle. It is very important to provide a thorough history, detailing the horses age, gender, onset of signs, if more than one animal is affected, if the lesions are seasonal, if the horse(s) have travelled, if there is contact with other animals, changes in environment, feeds and any medications given (either new or chronic medications). You should also be open and honest about all the therapies you have tried.

**Environment**

Excessive sweating during hot or humid times of the year will occur where heat is trapped under the mane. Sweat is absorbed by the keratin layer of the epidermis, and the hair follicles remain moist for the duration of the hot weather. That moisture causes the hair follicle to soften and release the hair. The high protein and salt content in the horse’s sweat also can dry in contact with the horse’s skin and cause irritation, which can lead to hair loss as well.  Dried sweat and dirt with or without the added pressure of insect bites may result in the sensation of itch.  Subsequent rubbing of the area by the horse may rub out patches of hair.

Proper management, careful grooming, and washing of the horse with a mild non-irritant shampoo can help prevent hair loss due to the aforementioned reasons. However there still are many horses which might glow with regular care and grooming, but lose areas of hair anyway. In colder climates, ensuring a horse is fully dried off before blanketing will help prevent skin diseases from developing.

**Skin Infections**

Superficial skin infections (dermatophilosis) can be caused by many different organisms. Bacterial infections will often present as raised areas of hair that is crusted (paintbrush lesions). The skin will be bare underneath this crust. Bacteria love moist environments and can set in where there is a break in the skin barrier (superficial scratches or abrasions). Often these types of infections can be treated with medicated shampoos and good grooming habits. Sometimes systemic medications are needed. These infections may also occur in moist conditions.  If left untreated the affected areas may enlarge, coalesce, and if the crusts fall off, be devoid of hair. Common conditions we recognize in horses that are actually dermatophilosis are: rain rot, girth itch and scratches.

If there is crusting associated with hair loss (along the leading edge of the bald area), the horse may have a dermatophyte infection (ringworm, also called dermatophytosis). Before purchasing and applying medications for this condition, you should make sure that ringworm is, in fact, the cause of the hair loss. This is often done by plucking hair for culture to see if the sample grows the fungus. When handling patients that have confirmed, or even suspected dermatophytosis, hygiene and personal protective equipment are especially important as ringworm is contagious to humans.

There are a number of topical antifungal agents that may be used in the treatment of ringworm that are available over-the-counter from your drugstore or pharmacy. Your veterinarian may choose to prescribe medicated shampoos or rinses, particularly if the lesions are widespread.

**Allergies**

Signs of allergies (usually scratching) in many horses appear with the arrival of summer and become progressively worse throughout the summer and worse each year. Any biting insect can be involved in insect hypersensitivity, though often the reaction is, at least in part, due to a very small fly called *Culicoides*. In fact, many affected horses are allergic to the bites of more than one kind of insect, and sometimes they are allergic to plants in their environment.

The first signs can include redness and large, flat, circular swellings (wheals) or raised nodules with or without central crusts. Intense itching (pruritus) often leads to hair loss, skin damage, secondary infections, and thickened, wrinkled skin.

The best therapy is to prevent insects from biting your horse, or at least reduce the number of bites. Effective management strategies include insect avoidance (stabling, blankets, fly sprays, etc) and environmental management (fly traps, removing manure, etc). You can also help relieve the irritation the horse is experiencing by using cool water rinses, medicated shampoos and systemic medications (prescribed by your veterinarian). It is possible to perform allergy tests to determine what your horse is allergic to. Once you know what the horse is allergic to, it is possible to develop a more solid plan to prevent allergic reactions. This will sometimes include desensitization injections, just like humans can receive. Around 50-70% of horses respond favourably to the injections.

**Parasites**

Common parasites of horses include mites, lice and ticks. Mites are parasitic arthropods, related to ticks. They are so small that they cannot be seen by the naked eye. There are many types of mites. Horses are affected by four main species. When a horse is affected by an infestation the general condition is called “mange.” What the mite feeds on and where it lives on the body depends on the type of mite. Horses can get mites from just about anywhere (hay, birds, mice, etc) and they tend to pick them up when they come into contact with them from another animal. Mites are present all year round, but their activity peaks in the winter months when the mites seek out the body heat of the horses. Most horses are quite resistant, but if they are run-down for any reason (age, disease, illness) they are more susceptible to an infection. Thankfully, only one species of mite is transmissible to humans.

Lice are very small, but can be seen by the naked eye. An infection with them is called pediculosis. It and be a frustrating syndrome to treat and also can be frustrating to prevent reinfection. Lice spread easily between horses and are more likely to be transmitted in crowded situations. Luckily, lice are species-specific, so horse lice can only infest horses. The infection with lice causes extreme itchiness due to the saliva of the lice. Like with mites, horses that are run-down for other reasons are more likely to develop an infection.

**Neoplasia**

Thankfully neoplasia (cancer) is relatively uncommon in horses. There are three types worth mentioning though: sarcoids, melanomas and squamous cell carcinoma. Sarcoids are the most common skin tumours of horses and affect all ages and sexes. They are persistent and progressive skin lumps that occur mainly around the head, in the armpit and the groin area, as well as developing in wounds where they can be confused with ‘proud flesh’ (exuberant granulation tissue). They are locally invasive tumours called fibrosarcoma and although they are locally invasive, but they do not spread to other organs.

Sarcoids are caused by bovine papilloma virus (BPV). It appears that the virus requires genetically susceptible horses in order to cause sarcoids; in other words, not every horse exposed to the virus will develop sarcoids whereas those that are genetically susceptible are likely to keep developing sarcoids. Even though a virus has been implicated in the development of sarcoids, there is no evidence to show that they are contagious between horses. Sarcoids do not usually self-cure and affected horses often develop multiple sarcoids at once or serially.

Sarcoids have a range of appearances and behaviours. Different types of sarcoids have different levels of aggression and need different treatments. It is therefore vital to identify which type of sarcoid your horse has. Sometimes this can be done by visual inspection, sometimes biopsies are needed. Mixed sarcoids are combinations of the types below and it is fairly common for horses to develop multiple sarcoid types in one region or for there to be multiple sarcoid types present at different sites around the horse. Rarely horses develop malignant sarcoids which are highly aggressive and spread locally via lymph vessels producing lines of sarcoids spreading from the original tumour site.

The main types are sarcoids are:

* Verrucose – These are slow growing and have flat, scaly tumours and look like scars or ringworm. They are the least aggressive sarcoid type.
* Nodular – These are well demarcated lumps, which may be covered by normal skin or may be ulcerated. They have a spherical appearance and may have a wide, flat base or narrow stem-like base. They have a medium growth rate and their behaviour may change over time.
* Fibroblastic – These are aggressive tumours that grow rapidly and are locally invasive, possibly invading down into the tissues underneath the skin. They might not be well demarcated and often occur in clusters of tumours of variable size and shape. They have an irregular appearance and because they grow rapidly are often ulcerated.

There is no universal best treatment for sarcoids which has resulted in many different treatments being proposed and used. The different behaviour of sarcoids means that different treatments are appropriate for different circumstances and also that a ‘one size fits all’ approach to treatment is not appropriate. As well as the type of sarcoid, factors affecting treatment options include the location and extent of sarcoids, treatment cost and the horse’s temperament.

Medical treatments include the immune stimulant injected into the tumour, topical chemotherapy creams/ointments and various other natural remedies. Surgical treatments include surgical excision, cryosurgery (freezing) and laser surgery. Surgical excision without additional therapy has poor success rates. Surgery followed by freezing (cryotherapy) improves success rates somewhat but the majority of sarcoids still may return following this approach. One approach that has been gaining popularity is to take a sample of the sarcoid, freezing it in liquid nitrogen and then implanting the pieces under the skin. This essentially makes a vaccine against the sarcoid already present in the body.

Melanomas are a very common, nodular cancer (mostly) of grey horses. More than 80% of grey horses will have at least one melanoma in their life time. They can develop at any age, but mostly commonly in horses over 7 years old. The vast majority of the tumours are benign, but they can occur in areas that cause issues with a horses normal daily function. If left alone, a lot of these tumours will become malignant (spread) at some point. Melanomas in horses that are not grey are more likely to spread to distant sites. Unfortunately the size or appearance does not indicate the level of malignancy. Most melanomas are a very dark to black colour and are firm when touched. They usually are not painful to the horse. The most common area to see melanomas is under the tail, around the vulva and on the penis/sheath. Other areas that they are seen with relative frequency are the lips and the parotid salivary gland. Treating melanomas can be relatively easy when they are small. Surgical excision is usually curative at the site, but more usually occur in other areas. Chemotherapy can be quite successful in treating the lesions, especially in areas where surgey is not an option.

Squamous cell carcinoma (SCC) is another relatively common tumour in horses. It only occurs in areas where there are squamous cells which means the skin, mouth, nasal cavity/sinuses and stomach. Penile carcinoma is probably the most common form. Tumors on the eye and surrounding tissues are also quite common. Carcinoma is caused by exposure to carcinogens (cancer inducing agents) such as sunburn or smegma (in the case of penile or clitoral forms). Diagnosis relies on biopsy of the suspected tissue. How malignant the tumour is can be determined by its appearance under a microscope.

Three clinical forms are recognized.

1. Proliferative: Form a growth which is the common form on the penis of older geldings and on the cornea (surface of the eye).
2. Ulcerative/Destructive: The tumour results in tissue loss, erosions and ulcerations. This type are commonly found on the non-pigmented eyelids and third eyelids, around the anus or perineal area.
3. Combined ulcerative/Destructive forms: Quite a common form which includes the vulvar or clitoral forms. Younger geldings are liable to developing this type and where the horse is under 10 years of age there is a high degree of malignancy.

Treatment of SCC relies upon surgical or cryosurgery removal, or the application of various cytotoxic chemicals. It is usually locally aggressive and the prognosis is poor if the eye or area around the eye has been invaded. Radiation therapy is considered the gold standard in suitable sites where surgical removal cannot be contemplated, or where the margins of the tumour are poorly defined making total removal challenging. Surgical removal should not be considered if the tumour has already invaded the local lymph node or the margins of the tumour cannot be fully defined. Surgical amputation of the penis in horses with penile carcinoma is curative and recurrences are rare provided that all the tumour tissue is removed.

The prognosis for squamous cell carcinoma is dependent on:

1. The site of the carcinoma and its suitability for effective therapy
2. How malignant the carcinoma is.
3. How long the carcinoma has been present and how many failed treatments have been attempted.
4. How extensive the secondary effects of the carcinoma have become

Squamous cell carcinoma is less malignant in the horse than in other species. However gastric carcinoma, oropharyngeal carcinoma, and penile carcinoma in younger geldings are usually more malignant than other forms. An early diagnosis and treatment improves the prognosis so any suspicious signs such as blood in the tears or other discharges should be actively investigated as soon as possible.

**Lymphangitis**

Lymphangitis, vasculitis, big leg disease, staph infection, or cellulitis. Whatever you call it, this recurrent bacterial infection and leg swelling affects many horses and is a frustrating cause of lameness. Lymphangitis is dramatically different than just “stocking up”. The horse experiences abrupt or short-term (acute) onset of a swollen leg, extreme pain ("three-legged lame"), and an elevated temperature (38.8-40.5oC). On examination, the limb will have "pitting edema" (when you squeeze it, you will see imprints of your fingers left in the tissue).

The veterinary community's best educated guess is that a cut or even simple abrasion to the leg allows bacteria access. Often, this is a *Staphylococcus*, *Streptococcus*, or *Escherichia coli*species. The bacteria reproduce quickly, causing the inflammatory reactions of heat and swelling as the body attacks its invaders. The lymphatic system drains fluid from the leg, filtering it through lymph nodes that try to remove foreign pathogens (disease-causing organisms). The lymph nodes are overwhelmed and can, themselves, become infected. Lymph ducts and blood vessels become damaged and swollen and lose elasticity, with blood and lymph pooling on top of the one-way valves. The heart continues to pump fluid in, but the exits are blocked.Within a few hours to days, fluid seeps through the most damaged areas of the tightly stretched skin. The serum can scald the skin or dry as clinging yellow crusts.

In an acute episode, aggressive antibiotics and anti-inflammatories are a must. Cold water/ice might be useful as long as the leg is not left wet, which will only compromise the skin further. Certain diuretics and other anti-inflammatory medications can be useful. The most challenging part of treatment is getting the extremely painful horse to move. Movement is necessary to help promote fluid to travel back up the leg.

Affected limbs might never return to normal, with the swelling causing long-term lameness. Recurrent bouts are common. Veterinarians have tried topical antibacterial/cortisone ointments, immune stimulants, and long-term antibiotic use as prevention with inconsistent results. Massaging the limb might help work the fluid away. Compression leg wraps or stockings might help keep the swelling down between attacks. Bandaging in the acute phase is dangerous as the swelling continues above the wrap. For recurrent cases, early detection and treatment of swelling might improve the outcome.

Your veterinarian should be an active partner in diagnosing and treating skin disease, particularly one that does not resolve in one to two weeks. By carefully examining your horse and following the progression of the skin lesions, you can help your veterinarian choose a place to perform a skin biopsy--the best diagnostic procedure for troublesome or persistent skin disease. Once a diagnosis is made, specific therapy can then be recommended by your veterinarian to resolve the condition.

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