Equine skin conditions

The horse's skin is developed to provide a barrier from outside influences and to protect the homeostasis, a stable environment within the body. It regulates the body's temperature by producing sweat and changing the peripheral circulation. It also produces vitamin D and contains an extensive network of nerves which are used for sensation. The skin is the largest organ of the body. But what if it gets damaged?

Breach
Injuries can vary from a superficial abrasion to an extensive wound. Fortunately the skin is has an excellent capacity to heal. Even the smallest breach in the barrier can lead to bacteria, fungi, viruses, parasites or other organisms to enter the body. Excessive washing and clipping of the legs for example can lead to microtrauma of the skin. Hardly visible to the human eye but in combination with a disruption of the normal bacterial flora on the skin it can be an opportunity for unwanted organisms to enter the body and cause an inflammation. External irritants, burns, trauma and allergens can also be the cause of this inflammation.

A melanoma on the head of a horse.

Defence mechanisms
The skin has only a few mechanisms to react to these organisms. The inflammation usually shows as swelling, abnormal redness and increased heat. Hair loss may be present. The horse may also show abnormal itching. As the inflammation progresses, crusting and scaling develop. When the deeper layers of the skin are involved, fluid discharge, pain and sloughing or shedding of the skin may occur. If the inflammation (dermatitis) is not controlled at this stage, chronic symptoms will start to develop. The skin may become thicker and change colour. Often the skin will become drier and the itching more obvious. Secondary bacterial or yeast infections develop as the skin's barrier has been breached.

Identification
As the skin shows only a limited range of symptoms as a reaction to an agent and secondary infections cloud the clinical appearance it can be challenging to identify the primary agent which caused the symptoms to develop. Often the clinical appearance is not enough to come to a diagnosis and usually additional examination is necessary. This may include evaluation with UV light, bacterial swab, microscopic evaluation of a biopsy, fungal test, etc.

Ringworm
A skin disease that is often easy to recognize is ringworm. It is not caused by a worm but by a dermatophyte fungus. It often causes round scurfy spots where the horse loses hair. These heal from the inside leaving 'rings' in the skin. The horse may be itchy. This infection is a zoonosis, meaning that humans can get infected as well. Young animals are more often affected as they have not developed immunity against the agent yet. Therefore older or animals with a decreased immune response will be more susceptible as well. These lesions will more easily develop at locations where the skin is mildly damaged or weaker, for example underneath the girth or the bridle.

Treatment
A diagnosis is made by taking a hair sample and growing the fungus in a lab. This can take 1-2 weeks. Treatment consists of washing the horse with an antifungal solution. Do not forget to treat all the tack that has been in contact with the horse as well, as these may contain spores from which new fungi will develop. As these spores are quite resistant to outside factors the horse usually has to be treated multiple times to exterminate the spores that have started to develop. If secondary infections (e.g. bacterial) arise, don not forget to treat those. When new horses are introduced in a barn it is advised to keep them separate from the resident horses for at least 2 weeks to prevent them from infecting these.

Oral plaques
When the abnormalities are only located within the ears and the horse seems not to be bothered by them chances are that the horse has aural plaques. The cause of these small, bald, whitish and sometimes crusty spots is unknown. An equine papilloma virus infection spread by biting insects is suspected. No treatment is known nor usually necessary. The horse may wear a fly mask with ear coverings and fly spray may be used to prevent biting flies to bother the horse. Papilloma virus can also cause warts. They are usually seen in young horses around muzzle and lips. They are contagious to other horses and disappear over time when the horse naturally develops immunity. No treatment is indicated.

Sarcoids
Sarcoids are benign skin tumors. They are often found around the head and in the groin area, but can develop on every location on the horse. They are often progressive and usually not painful for the horse. Over time they may get infected and start bleeding. Especially when they are in locations which interfere with the tack or where treatment is difficult when the lump grows, it is wise to treat them in an early stage. Various treatments have been tried over time, from surgical excision to freezing and BCG injections. Often the sarcoid reappears over time. At the moment a couple of ointments are available and seem to be quite successful.

Melanomas
Melanomas are tumors as well and are mostly seen in grey horses. Over the course of their lives up to 80% of grey horses develop one or more melanomas. They are not only present on their skin but can develop in every tissue in their body, from muscles to lungs, etc. They are benign, but like sarcoids can present trouble when they become infected, start bleeding or are located in vital areas (like around the anus, blocking the passage). Treatment is usually not indicated unless complications arise.

Overreaction of the immune system
The skin can also show changes as a result of an overreaction of the immune system. Hyves are round(-ish), raised wheels over the body that make the hair stand up. They can be caused as a reaction to airborne allergens (e.g. pollen, molt, dust, etc.), ingested allergens (e.g. feed ingredients), vaccinations or medication. A breakout usually is not painful for the horse but may itch. The reaction subsides when the allergen causing it is no longer present. Often it is difficult to identify the allergen though. Treatment with corticosteroids may speed up the recovery. Sweet itch or insect hypersensitivity is based on the same principle. The horse's immune system overreacts after being exposed to the saliva of the Culicoides midges. Prevention is key here. The best way to treat these patients is to prevent them from being bitten by the midges by applying special rugs, keeping them indoors at the times the midges are present and applying insect repellents.

Dermatitis
Pastern dermatitis is a name for all skin problems located on the lower leg. These can be caused by bacteria, fungi, parasites (like mites) etc. and often these are present at the same time (secondary infections when the skin barrier is breached). Skin changes can also be caused by the sun. Just like in people the horse's skin can burn in the sun and become inflamed. Especially unpigmented skin (underneath the white hairs on the legs or the nose) is susceptible. Various plants can increase the horse's skin sensibility, making it more prone to get sunburned. Others damage the horse's liver (like Ragwort) which also results in an increased risk to get sunburned. So apart from treating the damage to the skin and protecting the affected skin from the sun it is essential to rule out underlying causes.

Parasites
Even in sport horses we can find parasitic infections. Though more often present in draft horses and Friesians, mange mites may also be present in other breeds. The first most striking symptom is that the horse becomes very itchy. After this skin changes may occur varying from alopecia to thickening of the skin and pruritis (fluid/pus). Lice can be found in younger horses or horses that are immune compromised (e.g. sick, skinny or old horses). Both can be treated with antiparasitic medication (topical or injection). Diagnosis can be challenging, especially with mites as they can hide away deep within the skin. Microscopical evaluation of skin samples is essential.

Conclusion
There are many more skin conditions. As the skin only has a limited variety of symptoms to develop, additional examinations are often necessary to come to a diagnosis. The clinical presentation is often a combination of primary and secondary infections. To come to an optimal treatment plan it is essential that all factors are identified. ■

THE VETERINARIANS


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ABOUT SMDC
Sporthorse Medical Diagnostic Centre (SMDC), based in the Netherlands, is a multidisciplinary centre of excellence where all orthopedic diagnostic and treatment modalities can be utilized in combination with experience, extensive knowledge and individual attention. Dr. Bergman, Dr. van Toor, Dr. Cokelaere, Dr. Hoogelander and Dr. van Veggel dedicate their time to optimize sporthorse performance while considering all factors which might influence it. Their caseload contains horses showing lameness but also includes horses with spine related problems, pre-purchases examinations as well as preventative sporthorse care. www.sporthorsemdc.com