

SKIN DISEASE IN HORSES – A PRACTICAL CLINICAL APPROACH

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offers a stage-by-stage approach to dealing with equine dermatological ailments, including the importance of correct categorisation and terminology

PARADOXICALLY, despite the relatively innocuous nature of most skin diseases compared with various life-threatening emergencies such as colic and traumatic injuries, many of us in practice would still rather see horses afflicted by the latter complaints.

This implies a general feeling of unease with the clinical approach to equine skin disease, which is probably founded in a frequent lack of a familiar and routine approach when faced with such cases.

This article is intended to suggest a practical approach to equine skin disease that has succeeded, at least in the author's personal experience, of achieving a greater level of comfort when faced with an equine dermatology case ([Table 1](#)).

Taking a history

Time taken for history taking is almost invariably productive – especially in cases where the client has a tight budget and is unlikely to sanction much, if any, further diagnostic sampling. Concerned

owners are rarely reluctant to talk about their horse's problem and time spent patiently taking a detailed history serves the dual purpose of providing useful information and convincing the owner you are taking their problem seriously ([Figure 1](#)).

Although some skin diseases are clearly distressing for the horse (for example, sweet itch and pyoderma), many are often un concerning to the affected horse (for example, urticaria and linear keratosis), but may be a major cosmetic concern to the owner. As the largest and most visibly obvious organ in the horse's body, skin disease rarely goes unnoticed by the horse's owner.

Examination

Examination of the horse's skin should be one of the easiest tasks we are faced with in equine practice, and simply has the dual aims of detecting the skin lesions on the horse and then describing them in terms of appearance and distribution. This does not require much skill or experience. A "silhouette" (for example, vaccination card) can be used to record the nature and distribution of the lesions, as well as the presence of pruritus, pain and comments on the general state of the coat – for example, dry, greasy, sparse and so on. We all have camera phones in our pockets, which serve as an invaluable clinical recording device for dermatology cases and also facilitate advice from distant sources via email attachments.

Skin examination is rarely adequate in a stable and should be performed outside in good light. All of the horse's skin, including visible mucous membranes, should be examined and described. Lesions may be subdivided into primary lesions, which initially arise with the onset of skin disease, and secondary lesions, which may follow on from the primary lesions.

Applying terminology

Awareness and use of appropriate terminology augments the value of clinical records for re-examinations – especially if performed by other colleagues. Descriptions of some of the main skin lesions follow. A macule or patch is a flat, non-palpable area of altered colour (less than 1cm = macule; greater than 1cm = patch). This usually relates to increased or decreased pigmentation, although petechiae/ecchymoses and erythema may also represent macules/patches.

A papule ([Figure 2](#)) is a firm, palpable mass in the skin, less than 1cm diameter. They usually protrude from the skin, but may be intradermal or subcutaneous. They are typical of bacterial or fungal infection of hair follicles or insect bites, and often lead to exudation, crusts, scale, erosion, ulcer and/or alopecia.

A nodule is a firm, rounded, palpable mass in the skin, greater than 1cm diameter, often reflecting chronic inflammation or neoplasia. A mass is often used to describe a large nodule (for example, greater than 5cm diameter). A plaque is a firm, wide, flat, palpable mass in the skin, greater than 1cm diameter. A wheal is a circumscribed, raised lesion caused by dermal oedema, with normal

overlying hair generally associated with urticaria.

A vesicle or bulla is a circumscribed, elevated lesion containing clear fluid (less than 1cm = vesicle; greater than 1cm = bulla; mixture = vesiculobullous). These are rarely seen in horses as fragility makes them short-lived and ulcers, erosions and crusts form in their place. They often signify pemphigus foliaceus or contact irritants. A pustule is a vesicle filled with pus and may indicate bacterial infection or pemphigus foliaceus

Alopecia may be primary or secondary to another skin problem. It suggests a complete absence of hair ([Figure 3](#)), whereas hypotrichosis (subtotal hair loss) is seen more frequently with equine skin conditions. Hair loss may be due to self-trauma (pruritus) usually leaving broken hairs, or complete epilation as a result of inflammation or damage to the hair root. Where hairs are easily epilated then any predominant stage of growth is important to ascertain (that is, telogen and anagen) as a normal horse will show a varied mix of growth stages.

Scale is usually secondary and reflects accumulation of many loose, cornified fragments of skin, generally due to inflammatory insult. Crust (scab) is a dry, solid adherent mass having resulted from drying of accumulated exudates, pus, serum, blood and so on. It is commonly seen with infective skin diseases and is also the dominant presenting feature of most cases of pemphigus foliaceus.

Lesion distribution

Distribution of lesions is important to note as this may frequently help determine causation. For example, melanomata and sarcoids frequently occur at well-known predisposed locations, painful crusts and exudates on the lower white limbs are typical of leukocytoclastic vasculitis, and dry scaling and hair loss of the ventral midline is typical of fly bite dermatitis.

Certain lesion distributions, such as coronary band or mucocutaneous lesions, are occasionally seen, which immediately allows consideration of a restricted list of differential diagnoses ([Tables 2](#) and [3](#)).

Thought should always be given to the possibility of skin disease as part of a multisystemic disorder if skin lesions are extensive or exaggerated, or if the horse is at all unwell ([Table 4](#), [Figure 4](#)).

Categorisation

The most important initial aim of skin examination is simply to classify the type of skin disease presenting itself. Skin diseases may be subdivided into seven categories ([Table 5](#)). Although these categories are not mutually exclusive, it is generally fairly easy to place a particular case into the one category that best fits the predominant presenting signs.

Categorisation then allows focus on a list of differential diagnoses, some of which are listed in [Table 4](#) and [Tables 6a-g](#). Given the history, lesion type and distribution, it might be possible to select a likely diagnosis from the list of differentials. However, many skin diseases – even within each category – may look remarkably similar (both grossly and histopathologically) as the skin reacts similarly to a range of insults. Thus, specific diagnosis of equine skin disease can often not be made without recourse to further diagnostic methods and clinical aids.

Diagnostic aids

Choice of diagnostic aids will clearly be influenced by category and differential diagnosis (as well as budget), but some general guidelines apply. Given the prominence of parasitic and allergic causes for pruritus in horses, then further investigation of pruritic horses should focus on these two major possibilities. Nodular skin diseases will frequently require biopsy for further specific diagnosis (note, not if sarcoid is suspected). Scaling and crusting skin disease should initially focus on infective causes, with swabs and plucks submitted for bacteriology and mycology, with biopsy being used where simple infectious dermatitis is ruled out or considered unlikely. Investigation of non-inflammatory hair loss may benefit from examination of hair plucks (anagen or telogen, or both) or biopsy. Skin disease with systemic involvement requires further investigation, often beginning with blood samples and biopsy.

Summary

Following collection of historical data, examination, description and categorisation of the horse's clinical signs and formulation of a differential diagnosis list – to which are applied logical further diagnostic aids – many cases will achieve a specific clinical diagnosis leading to specific therapy. Failure to respond to treatment should raise concern of an alternative diagnosis and the case should be reviewed.

There is much to be attracted to in equine dermatology in the context of achieving clinical success, not the least of which is ability to directly visualise the diseased organ.

However, as with many other clinical challenges such as an orthopaedic or colic work-up, success often depends on development of a logical, clinical procedure with which the clinician becomes familiar and comfortable.



Figure 1. Without a good history, how would you know this sweet itch case is inadvertently being encouraged to stand in the part of the field with the highest fly activity?

IMAGE: Courtesy of Derek Knottenbelt.



Figure 2. Non-painful papular reaction typical of infective folliculitis (fungal or bacterial?) in this case of dermatophytosis.



Figure 3. Non-inflammatory focal area of hair loss due to alopecia areata.



Figure 4. Extensive painful crusting and secondary hair loss in a case of pemphigus foliaceus.

1. History taking

2. Examination and description of skin lesions

3. Categorisation (**Table 5**)

4. Form list of differential diagnoses (**Tables 6a-g**)

5. Select further diagnostic aids

6. Achieve probable diagnosis

7. Select appropriate treatment

8. Review response to treatment

Table 1. Summary of the steps involved in a suggested dermatologic examination procedure

Pemphigus foliaceus

Multisystemic eosinophilic
epitheliotropic disease

Sarcoidosis

Erythema multiforme

Selenium toxicity

Zinc-responsive dermatitis

Dermatophytosis

Coronary band dystrophy

Table 2. Several more prominent causes of coronary band lesions in horses (not an exhaustive list)

Bacterial dermatitis

Candidiasis

Malassezia

Erythema multiforme

Pemphigus vulgaris

Bullous pemphigoid

Multisystemic eosinophilic
epitheliotropic disease

Discoid lupus

Table 3. Several more prominent causes of mucocutaneous lesions in horses (not an exhaustive list)

Hepatic insufficiency	Photosensitisation
	Pruritus
Chronic inflammatory infiltrative diseases	Sarcoidosis
	Multisystemic eosinophilic epitheliotropic disease
Telogen effluvium/anagen defluxion	
Autoimmune skin diseases	Pemphigus foliaceus
	Erythema multiforme
	Pemphigus vulgaris
	Bullous pemphigoid
	Systemic lupus
Paraneoplastic bullous disease	
Pituitary pars intermedia dysfunction (PPID)	
Multisystemic neoplasia (for example, lymphoma)	
Immunosuppression	

Table 4. Examples of conditions in horses where skin disease occurs as part of a wider systemic disorder

1. Altered sensation (pruritus or pain)
2. Lumps and bumps (papules, nodules, plaques, masses, wheals)
3. Dry scaling and crusting
4. Hair loss (alopecia, hypotrichosis) or changes in hair quality
5. Pigmentary changes (macules and patches)
6. Moist exudative skin diseases
7. Skin disease as part of a wider systemic disorder

Table 5. The seven main categories of equine skin disease. The initial aim of examination should be to place the case into one of these categories

Parasites	Lice	
	Mites	<i>Chorioptes</i>
		Free-living mites
	<i>Oxyuris equi</i>	
Allergic dermatitis	Insect bite hypersensitivity	
	Atopy	
	Contact	
	Feed	

Table 6a. Common causes of pruritus in horses

Staphylococcal folliculitis/ furunculosis
Dermatophilosis
Pemphigus foliaceus

Table 6b. Common causes of painful skin lesions in horses

Fly bites	
Eosinophilic granuloma	
Bacterial furunculosis	
Fungal granulomas	
Sarcoid	
Mastocytoma	
Pseudolymphoma	Panniculitis
	Calcinosis circumscripta

Table 6c. Common causes of nodular skin lesions in horses

Dermatophytosis
Dermatophilosis
Lice
Endoparasitism
Dietary deficiency/ malabsorption/catabolism
Pemphigus foliaceus
Contact dermatitis
Sarcoidosis
Multisystemic eosinophilic epitheliotropic disease
Epitheliotropic lymphoma
Cutaneous adverse drug reaction
Iodide toxicity
Mane and tail seborrhoea
Excessive washing

Table 6d. Some differential diagnoses for crusting and scaling skin disease in horses

Abnormal shedding
Anagen defluxion
Telogen defluxion
Alopecia areata
Selenium toxicity

Table 6e. Some differential diagnoses for hair loss not associated with obvious primary dermatitis

Post-inflammatory
Cutaneous lupus erythematosus
Equine herpesvirus 3 (EHV3) coital exanthema
Vitiligo

Table 6f. Some differential diagnoses for local/multifocal pigmentary loss

Urticaria
Bacterial folliculitis/ furunculosis
Abrasion/intertrigo

Table 6g. Common causes of moist/exudative skin lesions in horses