

Skin Diseases Refresher

Dermatophilosis (rain scald)

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Disease profile

The primary aetiology is *Dermatophilus congolensis*, an opportunistic pathogen and common commensal inhabitant of the skin. It is not found as a free-living agent in the environment

Prolonged wetting of the hair is usually involved (possibly with accompanying skin maceration or softening). Secondary infection or primary infection with *Staphylococcus* spp. or *Streptococcus* spp. is common.

Highest incidence in out wintered horses or in wet summers. Milder forms can occur on horses subjected to a single intense soaking, for instance, following a thunderstorm, particularly if they are put away wet under rugs (Fig 1). Horses living in stables with open top doors can also be affected on the face (Fig 2). Secondary infection can occur on sunburnt skin of the face and elsewhere.

Lesions on the body surface often closely mimic the water 'run-off' zones (Fig 3). The condition known as 'mud rash' or 'mud fever' is a similar disorder that affects the pastern region and is a common cause of pastern dermatitis.



Fig 1: Localised mild lesions produced on the back of a horse subjected to one profound wetting whilst walking on a horsewalker in a thunderstorm. These lesions take several days to develop and their aetiology can therefore be apparently misleading.

Some horses may be more prone to the disorder than others suggesting that a genetic susceptibility may exist. Immunocompromised and malnourished horses are far more susceptible but serious infections can occur in almost any horse. Immunity is short-lived so recurrent infections may occur.

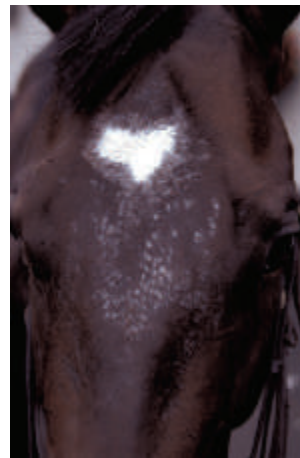


Fig 2: Localised mild lesions of dermatophilosis on the face produced by a horse standing with its head over a half stable door and becoming soaked.



Fig 3: The typical surface run-off pattern following wetting. The lesions of dermatophilosis often follow this pattern closely.



Fig 4: More advanced coalescing lesions such as these are usually the result of repeated wetting, and can be difficult to remove.

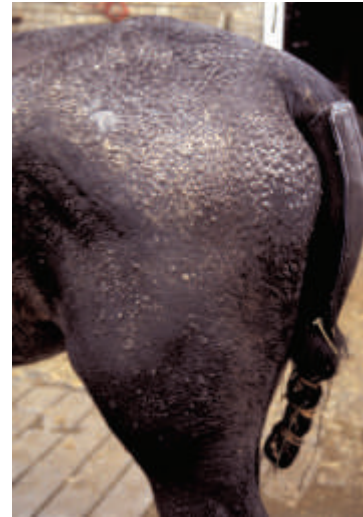


Fig 6: Note the tessellated appearance of the coat and the sheet-like cardboard nature of the lifting areas of keratin in this severe case of 'rain scald'.

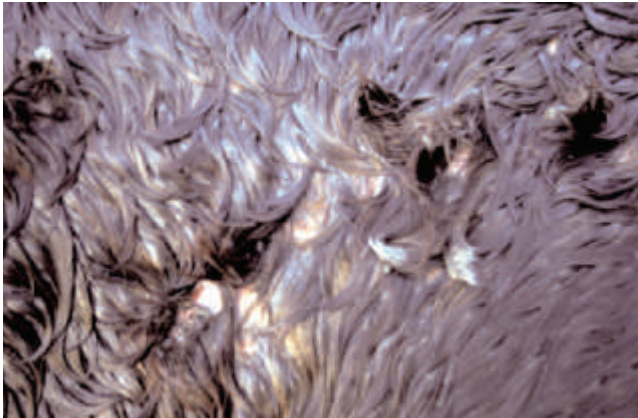


Fig 5: A close up of the horse shown in Figure 6 showing the areas of pink exudative dermatitis, which lay beneath the crusts, which have been pulled off (to the right).

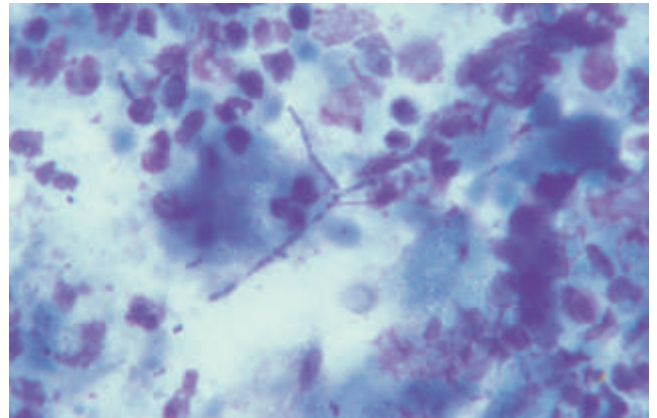


Fig 7: The microscopic appearance of *Dermatophilus congolensis* a chain like coccus, often described to appear like a branching railway line.

Clinical signs

Early lesions appear as a mildly painful, nonpruritic exudative dermatitis. The lesion begins as infection in the hair follicles and pustule formation, which rapidly coalesce to be an exudative sheet of crusted serum (**Fig 4**). This gives the skin a hard 'cardboard-like' feeling.

The winter form tends to be more extensive and exudative with more obvious pustular dermatitis than the summer forms. On lifting the crusts from the skin there is often a greenish-yellow accumulation of pus on the under surface of the crust. The skin surface usually has a characteristic rose-coloured slightly shiny surface (**Fig 5**).

The lesions of the summer form are invariably much smaller and may often be felt rather than seen. This form produces a small fibrin collar around groups of hair shafts (the so-called 'paint brush lesions') (**Fig 2**). In both winter and summer forms the coat may have a tessellated appearance (**Fig 6**).

In very severe infections the horses can be clinically ill with a raised temperature and dullness.

Investigations

- 1) History (of recent wetting).
- 2) Contact impression smear of underside of freshly peeled scab.
- 3) Bacterial culture, but must be microaerophilic, on correctly transported swabs.

Differential diagnosis

Ringworm: lesion distribution and epidemiological features should be helpful in this case.

Some cases of staphylococcal and streptococcal folliculitis can resemble dermatophilosis, but are usually in areas of abrasion and contact with riders or tack rather than in wetting

zones. Severe urticaria lesions can cause skin exudation but the hair does not become damaged.

Confirmation of diagnosis

Diagnosis is based on the clinical signs, distribution of the lesions and identification of the organism.

The *Dermatophilus congolensis* bacterium is a branching Gram positive filamentous organism whose characteristic morphology is apparent when stained with any of the common stains such as methylene blue or Gram stain, or Wright Giemsa (Dif-Quik)¹. The organism appears as fine branching hyphae, often referred to as having a 'rail track' appearance because of the parallel rows of filaments (**Fig 7**).

The microscopic examination is best made on smears taken directly from the underside of a freshly pulled tuft of hair or scab. The best specimen to examine is obtained by soaking the wet under-surface of the scab in a drop of a saline on a slide and macerating it for few minutes until the drop is patently cloudy. This is then spread on the slide, fixed and stained.

Culture is not usually warranted and in any case is made difficult by the microaerophilic requirements. Specimens for culture must be preserved in a microaerophilic container with a high carbon dioxide concentration.

Management

Continued wetting of the skin must be prevented - if necessary by stabling the horse. All rugs and blankets must be removed to prevent sweating and condensation.

Horses that live out day and night in summer and winter rarely develop rain scald, indicating that there is probably an interaction between the effects of continuous clipping out of the coat. The natural skin oils may be protective and clipping

may cause this protective barrier to be impaired. Where it is impractical to keep affected horses dry, it is almost impossible to prevent the recurrence. The summer form may not require any treatment.

Excessive grooming should be avoided and all grooming equipment must be kept clean and used for individual horses. Local treatment of affected skin is sometimes helpful.

Soaking of the skin with saline solution or washing the skin with chlorhexidine scrub solutions will allow the affected crust to be lifted away. However, it is not always possible to remove all the affected hair and in these cases the damaged skin will gradually recover with sloughing of dry sheets of exfoliated skin and hair. Rarely does deep scarring follow.

Localised lesions may respond to topical applications of silver sulphadiazine (Flamazine)². Corticosteroids are contraindicated in most cases because the infection can be exacerbated by the suppression of the local and systemic immunity.

Horses that are clinically ill will require a full course of parenteral antibiotics; procaine penicillin is usually effective and should be given for 3–5 days, but is not an effective substitute for skin hygiene.

If large numbers of horses are affected over large areas, daily application of 5% potassium permanganate has been recommended as an effective and cheap form of treatment.

Lesions on the cranial aspect of the hind cannon bones and the belly can be protected from soaking by use of barrier waterproof creams; those containing mild antiseptics are useful. Hydrous wool fat BP is a cheap and effective waterproofing agent for these areas; a small amount is applied daily prior to exercise and removed afterwards.

Manufacturers' addresses

¹VWR, Poole, Dorset, UK.

²Smith and Nephew, York, UK.