

## Popular Article

# Dermatophilosis in Equine

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### Introduction

Dermatophilosis is a common skin infection in horses caused by the bacteria *Dermatophilus congolensis*. Skin lesions caused by infection with the actinomycete *Dermatophilus congolensis*, and sometimes erroneously called “mycotic dermatitis, streptithricosis, rain rot or rain scald. If dermatophilosis is present on the horse’s lower legs it is called dew poisoning. The disease can manifest in two forms in horses: a winter form and a summer form. The winter form is more severe. On a horse, *Dermatophilus congolensis* may remain dormant, but when the horse is traumatized, it is able to enter. A laceration, insect bite or abrasion can all cause the bacteria to enter the skin. The bacteria cause pustules (pus filled bumps) that then scab over. As the scabs are pulled off the skin, hair patches are pulled off. The hair patches are matted together and can appear to look like tip or paintbrush.

### Aetiology

In addition to being strictly parasitic of the skin, *D. congolensis* can also survive in the environment for some time. This bacterium is Gram-positive, aerobic, and is strictly parasitic of the skin. This parasite only infests the epidermis and does not invade the stratum corneum. A distinctive feature of this organism is the presence of branching filaments that are arranged transversely and longitudinally, forming parallel rows of small, coccoid 'zoospores'.

### Transmission

The bacteria can be transmitted by:

- Using contaminated grooming tools
- Sharing blankets, leg wraps, halters or saddles
- Scratching post or other scratching areas
- Being close to another horse that has dermatophilosis

It is important to note that a horse can be a carrier for the bacteria, without showing any physical symptoms.

## Clinical sign and symptoms

Clinical symptoms include small bumps on skin, scabs' formation and matted and ruffled hairs, due to a purulent exudate present on the skin surface. After removal of the crusts, erosions or ulcerations sometimes bleeding, and covered with purulent exudate become visible. The removed hair is matted together with the exudate in their proximal part, which makes them look like paintbrush. In the summer form, the lesions are less severe. There are crusts ranging in diameter from 1 to 2 millimeters on the skin surface, and the coat is often thinned. It is common for this type of disease to develop crusts and scales on distal parts of the limbs. If animals are kept in poor environmental conditions, they may only be affected in these areas.



**Figure 1:** Dermatophilus infection.

## Diagnosis

The diagnosis depends on the demonstration of the bacteria in impression smears and in culture. The material should be sampled from acute lesions covered with exudate. The slides of impression smear may be stained with methylene blue, Giemsa or Gram stains. Under the microscope, the bacteria are seen as branching filaments (hyphae) that are 1  $\mu\text{m}$  in diameter. They are transversely fragmented into cocci-like spores; and hence form chains of 2 to 8 rows of round cells. The filaments are 3.5  $\mu\text{m}$  wide.

Skin sample are plated on sheep blood agar media and incubated at 37°C in 5-10% CO<sub>2</sub> and after 48 h the medium is entirely haemolysed. *D. congolensis* also grows on Sabouraud medium or brain heart infusion agar. Histopathological examinations of samples reveal hyperkeratosis, parakeratosis, acanthosis, and folliculitis. During the initial period (from day 4 to 14) the

inflammatory infiltration in the epidermis is composed mostly of neutrophils and subsequently mononuclear cells in chronic condition. Necrotic areas within the granular layer of the epidermis may be noted. Sometimes the typical forms of *D. congolensis* (filamentous hyphae) may be seen within the epidermis and hair follicles.



**Figure 2:** (a) Growth of *Dermatophilus* on blood agar media. (b) Microscopic characteristics of *Dermatophilus congolensis*.

## **Treatment**

Once dermatophilosis is diagnosed, horse should be quarantined from the other horses in the stalls. An antibacterial shampoo should be preferred once or twice a week for several days. It is recommended that attendant should wear gloves when dealing with dermatophilosis. Once shampooed, the horse needs to be dry each time. Scabs should be gently removed so the skin underneath can get oxygen, which helps with the healing process. Removing the scabs will also assist with new hair growth. The infected skin is very painful to the horse, so it is better to soak the scab with a sponge dipped in a natural oil-blend product to loosen the scab before removing it. The therapy of dermatophilosis includes systemic antibiotic, as well as topical treatment. Tetracyclines, penicillins, streptomycin, erythromycin, chloramphenicol, lincomycin–spectinomycin mixture, oxytetracycline, ampicillin, and ceftiofur are all effective. Topical treatment of dermatophilosis may include the application of preparations that contain 0.5% chlorhexidine, 0.15% chloramine, 5% potassium permanganate, 4% iodine tincture or other iodine compounds. Dehydrant preparations containing zinc sulphate or copper sulphate may be applied on lesions with abundance of exudate. Aloe vera gel is effective for animals with lesions that are restricted to the limbs. However, recovery was observed only after a long course of six weeks of treatment.

## **Prevention**

It is crucial to keep animals in proper hygienic conditions during the treatment period. It is not recommended to keep them in a damp environment or expose them to rain. The riding and management equipment, as well as the housing facilities where affected animals are kept, should be thoroughly disinfected during and after treatment.