

## Clinical and Mycological Observations on Equine Ringworm Due to *Microsporium gypseum*

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### Summary

*Microsporium gypseum* was identified as the prime cause of dermatitis in two young horses who were housed in unhygienic stables. The lesions were mainly distributed on the thorax, abdomen and rump. The diagnosis was established on the direct demonstration of dermatophyte in the cutaneous lesions and isolation of the fungus in pure and heavy growth from the infected hairs and skin scales on mycological medium at 30°C. Microscopic morphology of the isolate in 'PHOL' stain many macroconidia and few microconidia. Epidemiological investigation revealed the prevalence of *M. gypseum* in the soil of stables. Mycological examination is highly imperative to distinguish the disease from other dermatological disorders. This appears to be the first report of equine dermatitis due to *M. gypseum* in Western India.

**Key words :** Dermatophyte, horse, *Microsporium gypseum*, PHOL

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### Introduction

*Trichophyton equinum* is the most common cause of dermatophytosis in donkeys, mules and horses.<sup>1-4)</sup> Rarely *Microsporium canis*, *M. equinum*, *M. gypseum*, *T. mentagrophytes*, *T. schoenleinii*, *T. terrestre*, *T. tonsurans*, *T. verrucosum* and *T. violaceum* etc. have also been reported as the etiological agents of the disease.<sup>5-8)</sup> Though sporadic cases of equine ring-

worm due to *M. gypseum*, *T. equinum* and *T. tonsurans* are described are described from India<sup>5,9-11)</sup>, there seems to be no record of *M. gypseum* in horse Onom Gujarat 11. Therefore this communication presents clinical and mycological observations in two natural cases of equine dermatitis due to *M. gypseum*.

### Materials and Methods

Skins scrapings along with hairs collected aseptically with a sterile scalpel from the periphery of the active cutaneous lesions of two horses belonging to different owners, were submitted in paper envelope by the field veterinarian to the laboratory of Veterinary Public Health for diagnosis. A part of the specimen was treated in 10% potassium hydroxide(KOH) for 10 minutes and wet mounts were examined under light microscope for the fungal elements. The remaining material was first dipped in one ml solution of actidione (0.5mg/ml) and chloramphenicol (0.1mg/ml) for 3 minutes to make them free from superficial contamination, and later implanted directly onto three slants of Sabouraud dextrose agar with actidione (0.5mg/ml) and chloramphenicol (0.05mg/ml) and plates of nutrient agar, brain heart infusion agar. The inoculated media were kept at 37°C and examined daily for microbial growth. Morphological study of the cultures were made in a newly discovered 'PHOL' stain.<sup>12)</sup> The new stain contained 0.3ml of 3% aqueous solution of methylene blue, 3ml of glycerol and 5ml of 4% aqueous solution of 35% formaldehyde.

In order to establish the source of infection, 6 soil samples (3 each) collected from two stables were investigated for the presence of fungus.<sup>13)</sup>

The detailed identification of the fungal isolates was based on criteria as described by Rebell and Taplin.<sup>14)</sup>

The topical treatment was done with 2% solution of tincture iodine. The durg was applied with a brush daily for three consecutive weeks on the le-

sions after the removal of crusts.

## Results

On clinical examination both the horses showed erythematous, alopecide greyish, crusted, scaly lesions approximately 2.2 to 3.5cm in diameter on different parts of the body. Mild pruritis was also evident : and no facial lesions were observed. The details of the breed, age, sex of the animal, location of lesions ets. are summarized in Table 1.

Direct microscopy of infected hairs and skin scales in 10% KOH failed to demonstrate any ectoparasite, yeast and Prototheca but revealed the presence of dermatophytes. The pathogen grew as pure and luxurient growth on Sabouraud medium producing flat and buff coloured colonies after six days of incubation at 30°C. Many thin-walled septate elliptical macroconidia and very few clavate microconidia were observed when examined by PHOL technique (Fig. 1).

No growth of bacteria and yeast could be observed on different nutrient media.

Of the 6 soil samples collected from the immediate environment of both the horses, 4 yielded *M. gypseum*. The number of colonies ranged between 3 and 10. In addition, *Aspergillus* spp., *Penicillium* spp., *Alternaria* spp., *Curvularia* spp., *Chaetomium* spp. and *Fusarium* spp. were also recovered. However, two specimens of soil were overgrown by the fast growing molds and therefore discarded.

Local therapy with 2% solution of tincture

**Table 1.** Clinical and Mycological Observations of Equine Microsporosis Due to *M.gyseau*

Case No.	Breed	Age in month	Sex	Location of lesions	Diagnosis by :	
					Direct microscopy	Culture
1	Non-descript	12	M	Neck, abdomen, thorax, rump	+	**
2	Non-descript	14	F	Abdomen, thorax, rump	+	+

\*Fungal elements were detected in 10% KOH preparations.

\*\**M.gyseau* was isolated from the cutaneous lesions.

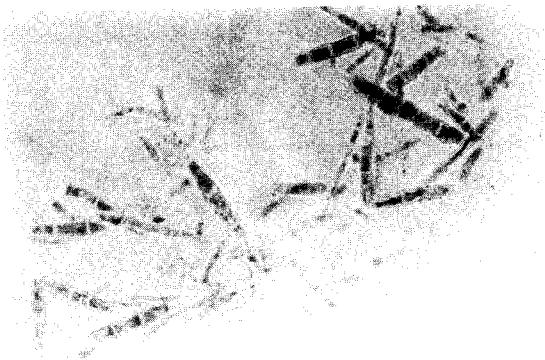


Fig. 1. Many septate elliptical macroconidia and very few microconidia of *M. gypseum* isolated from skin lesions of case 2. PHOL stain  $\times$  400.

iodine was successful as evidenced by clinical improvement. But the mycological evaluation of the drug was not attempted.

### Discussion

In recent years there appears to be an increase in dermatomycosis in equine.<sup>1)</sup> There are evidences to believe that dermatophytes can hardly attack the healthy skin of horses.<sup>2)</sup> A breach to the skin as a result of minor injury favours the entry of the fungus. In one case owner of the horse recalled a small trauma to the skin of rump due to a peice of brick. As *M. gypseum* was prevalent in the environment of stable, it is very likely that the pathogen would have entered through the macerated skin.

*M. gypseum*, a geophilic dermatophyte, has a wide host range affecting many domestic, pet, zoo and wild animals.<sup>3,4,5)</sup> The fungus lives as a saprobe in soil which may be considered the prime source of *M. gypseum* infection to man and animals. The unhygienic, warm and moist environment favours the development of dermatophytic infection. The same is true in the present case as both the horses were kept in unsanitary conditions of stables.

Clinically the dermatophytosis resembles to sca-

bies, dermatophilosis and bacterial folliculitis. Hence it is advised that diagnosis must be confirmed by employing standard mycological techniques.

This will help to institute an early specific chemotherapy. Furthermore, decontamination of harness, saddle, blanket and grooming equipment is imperative as they may transmit the fungus to other susceptible hosts.

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## 말에 있어서 *Microsporum gypseum* 에 의한 백선증의 임상학적 및 진균학적 관찰

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### 요 약

비위생적인 마굿간에서 사육중인 2두의 젊은 말에서 *Microsporum gypseum* 이 피부염의 일차적인 원인으로 증명되었다. 병변은 주로 흉부, 복부 및 둔부에 분포하였다. 피부병변에서 직접 표재성진균을 증명하였으며, 감염된 털과 인설을 진균배지에 접종하고 30℃에서 배양하여 순수분리하였다. 분리균을 PHOL 염색하여 경검한 결과 다수의 대분생자와 소수의 소분생자를 확인할 수 있었다. 역학적인 조사 결과 마굿간의 흙이 심하게 오염되어 있었다. 다른 피부질환과의 감별을 위해서 진균학적 검사가 필수적이다. 이 보고는 인도 서부에서는 처음으로 *M. gypseum* 에 의한 말의 피부염 발생을 보고하는 것이다.