

Survey on Horse Dermatophytosis in Golestan, Iran

Yahyaei, M.,*¹ Ebrahimi, M.M.²

1. Natural Sources & Animal Husbandry Research Center, Gorgan, Golestan, Iran

2. Razi Vaccine & Serum Research Institute, P.O.Box 11365-1558, Tehran, Iran

Received 17 May 2000; accepted 12 Aug 2000

Summary

The prevalence of ringworm was studied in 400 horses in different areas of Golestan province. *Trichophyton equinum* var. *equinum* was isolated from 6 (1.5%) of them. The infection rate was high in truck horse and the incidence increased during the summer. The majority of lesion was located on the neck. No significant difference was observed between age groups.

Key words: ringworm, horse, *Trichophyton equinum*, Iran

Introduction

The dermatophytes of veterinary importance are in the genera of *Trichophyton* and *Microsporum* occur in all parts of the world. Horse is the principal host for *T. equinum* (Stros *et al* 1978, Vries & Jitta 1973). *Trichophyton* may be transmitted from affected horse to another, and from infected to uninfected stable by direct or indirect contact. An increased incidence was shown during the summer, autumn and winter months and indicated this might be to suitable climatic conditions for growth of the dermatophytes and also, to heavy contamination of the environment (Pascoe 1976, Stannard 1976).

The most common clinical picture of dermatophytosis of horses is that of dry, raised scaling lesions on any part of the animal. Saddle, girth area and the hindquarters are the most common sites of infection. The initial lesion is a swelling that can be felt through the hair. They become small, inflamed ulcers with pussy exudate. The entire mass of hair may be removed as unit. By loss of peripheral hairs

the chronic infection is established. The invasion of dermatophytes to hair became 9 days or more after the initial contact (Choi *et al* 1996, OAdgefa 1986).

This paper presents the results of the survey of equine ringworm on different area of Golestan, Iran.

Materials and Methods

Between spring and winter, 1996-98, 400 horses were examined clinically for ringworm lesions. They selected randomly from plain (309 horses), piedmont (45 horses) and mountain (46 horses) area. Specimens of hair and skin scrapings were collected from all of the infected horses. Age and location of lesion were recorded for each case and also the season that specimens collected. Samples were then placed in sterile containers and forwarded to the diagnostic laboratory of Golestan center of natural sources and animal husbandry for culture and identification.

Direct examination and culture. The collected samples were identified by direct microscopic examination of a wet mount, using lactophenol cotton blue. Fungi were identified initially cultured onto Sabouraud's dextrose agar (Merck) containing chloramphenicol and cyclohexamide incubated at 25-30°C and examined daily for 2 weeks. To diagnosis of variety if the fungus was a *Trichophyton equinum* the utilization of nicotinic acid was also examined.

Environmental data. Average monthly temperatures, relative humidity and monthly rainfall were obtained from the Golestan weather station.

Statistical analysis. By use of chi-square the effect of age, season and climatic conditions were tested for 400 horses.

Results and Discussion

Of 400 horses examined, 6 were found to be clinically affected with giving positive cultures (Table 1). Only *T.equinum* var.*equinum* was recovered from them. The infected horses were including plain racing (1), plain pregnancy (2), plain truck (1), mountain truck (1) and piedmont truck (1) horses. The distribution of lesions associated with *T. equinum* var.*equinum* infection was neck (4), face (3) and the other sites (1).

From six clinical cases were recovered on the survey period, five occurred in summer and 1 in autumn. The latter was including plain racing and the others were mountain truck (1), piedmont truck (1), plain truck (1) and plain pregnancy (2) horses. The increased infection rate in truck horse may be due to rubbing of face and neck on contaminated wooden walls of stable and trees. *T. equinum* like other *Trichophyton* sp. could able to survive for lengthy periods away from the host animal (Pascoe 1976, Ihrke *et al* 1988).

Table 1. Survey of dermatophytosis in experimented horses

Horse	No. in Work	Season							
		Spring		Summer		Autumn		Winter	
		No. Sample	No. Infection	No. Sample	No. Infection	No. Sample	No. Infection	No. Sample	No. Infection
Mountain truck	46	16	-	10	1	11	-	9	-
Plain pregnancy	47	2	-	11	2	29	-	5	-
Plaine racing	230	46	-	29	-	111	1	44	-
Plain	5	1	-	2	-	1	-	1	-
Plain truck	27	2	-	5	1	12	-	8	-
Piedmont truck	45	7	-	10	1	21	-	7	-
Total	400	74	0	67	5	185	1	74	0

It is clear that environmental conditions such as warmth and humidity could affected the spread of infection an also increase the susceptibility of host animal (Pascoe 1979, Sterwig 1985). As noted above, most infected cases occurred during the period of high relative humidity and rainfall. For that reason no clinical cases were observed during winter and spring.

Table 2. Environmental data in period of sampling

Season	Relative rainfall(mm)	Relative humidity(%)	Temperature (°C)
Spring	44	74	18
Summer	5	80	32
Autumn	82	65	14
Winter	40	71	10

The significant differences ($P < 0.05$) in infection rate among truck horses in summer and other seasons may be due to:

- Kind of work and carrying heavy loads on thick and dirty packsaddle especially in summer, which the horse's friction and sweat may increase.

- Carrying decaying and damp woods, as the source of infection, by the cheap horses and no pay attention on their health.

- Stable the horses on dirty, dark, warm and moisture stables without ventilation.

- Existence of optimal climatic and environmental conditions for growth of causal organism in summer and autumn.

Grooming, hygiene and use of sunshine are effective in decrease of infection rate in plain racing horse.

1% of experimented horses was 8 to 13 years of age and included over 66.6 % of infected cases. Of the remaining 0.5%, 2 years and older, 33.3% were infected. In order to the low frequency of clinical infections there was no significant difference between age groups.

References

Choi, W.P., Lee, H.J. and Ha, T.Y.(1996). Dermatophytes and skin mycoflora in horses. *Korean Journal of Veterinary Research* 36:389-394.

Ihrke, P.J., Wong, A., Stannard, A.A. and Vivrette, S.L.(1988). Cutaneous fungal flora in twenty horses free of skin or ocular disease. *American Journal of Veterinary Research* 49:770-772.

Oadgefa, C.A.(1986). Dermatmycoses in the horse. *International Journal of Zoonoses* 13(2). Abstract No: 9078.

Pascoe, R.R.(1979). The epidemilogy of ringworm of race horse caused by *Trachophyton equinum* var *Autotrophicum*. *Australian Veterinary Journal* 55:403-408.

Pascoe, R.R.(1976). Studies in the prevalence of ringworm among horses in racing and breeding stables. *Australian Veterinary Journal* 52:419-421.

Stannard, A.A.(1976). Equine dermatology. *American Association of Equine Practice* Abstract (C) No:2335.

Sterwig, H.(1985). Ringworm in domestic animals in Norway occurrence, epidemiological aspects and official regulations. *Norsk Veterinaertids Skrift* 97:811-816.

Stros, K., Krivanec, K., Komarek, J. and Malinsky, B.(1978). Dermatomycosis outbreak in horses caused by *Trichophyton equinum*. *Veterinary Medicina* 23:175-184.

Vries, G.A. and Jitta, C.K.(1973). An epizootic in horses of the Netherlands caused by *Trichophyton equinum* var.*equinum*. *Sabouraudia* 11:137-139.