

## *Trichophyton Verrucosum* Infection in a Camel and its Handler

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### 사슴과 그 취급자에 있어서 *Trichophyton verrucosum* 감염 1예

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**요 약** : 6개월령의 숫 낙타와 29세의 남성 낙타 관리인에서 발생한 *Trichophyton verrucosum*에 의한 진균감염증에 대해 보고하였다. 이 감염증은 피부 병변으로부터 KOH 기술에 의해 균 요소를 증명하고, 또한 감염된 피부의 소파물로부터 *Trichophyton verrucosum*을 분리하여 확인하였다. 낙타에서는 안면에 국한하여 병변이 발생하고, 관리인에서는 손에 발생하였다. 화학요법으로서 낙타에게는 2% 옥도정기를 사용하고, 관리인에게는 2% miconazole 연고를 사용하였다. 이 보고는 인도에 사는 단봉낙타로부터 *Trichophyton verrucosum*이 직접 사람에게 전염된 최초의 보고로 생각된다. 이 보고에서 단봉낙타의 피부염 감별진단에 *Trichophyton verrucosum*도 고려해야 한다는 사실을 제시하였다.

**Key words** : *Trichophyton verrucosum*, dromedary camel, attendant

### Introduction

Dermatitis, a disease of multiple etiologies is important from economic and public health point of view. The disease is caused by many fungi including dermatophytes<sup>5,9</sup>. The available literature indicated that dermatophytosis in camel is rarely reported<sup>1</sup>. Further, no information could be gathered on the zoonotic significance of this zoophilic dermatophyte from India<sup>2</sup>. The purpose of this communication is to describe the role of *T.verrucosum* in camel dermatitis and its transmission to man.

### Material and Methods

Skin scrapings collected aseptically from the cutaneous lesions of 6 month old male camel and 29-year

male animal attendant constituted the material for this investigation. A part of the specimen was examined under light microscope after treating with 10% potassium hydroxide. The remaining specimen was inoculated into slants of Sabouraud dextrose agar, Sabouraud dextrose agar with chloramphenicol and Sabouraud dextrose agar with chloramphenicol and actidione.

The inoculated slants were incubated at 37°C and examined daily for fungal growth over a period of 21 days. The microscopic morphology of the culture was studied in PHOL stain<sup>3</sup>. The detailed identification of the isolates was made according to the procedures described by Reball and Taplin<sup>8</sup>. In camel, tincture of iodine (2%) was applied daily two times for 3 weeks on the lesions after the removal of crusts. Topical application of 2% miconazole ointment was done for 3 weeks on the tinea manuum of man.

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## Results

On physical examination, the camel showed two round, raised, greyish crusted lesions on the left side of the face. One circular ringworm type erythematous lesion was observed on the right forearm of a 29-year-old man who was handling the affected camel. Direct microscopical examination of skin scraping both in camel and man revealed the presence of arthrospores. No ectoparasite, yeast, *Nocardia* organism were observed in infected skin. The fungus grew slowly on Sabouraud dextrose agar with chloramphenicol and actidione and showed small, white, heaped and folded colony. Microscopic morphology of the animal and human isolates in PHOL stain confirmed the identity as *T. verrucosum*<sup>8</sup>. Chemotherapy with tincture of iodine and miconazole was found effective in camel and man respectively.

## Discussion

The results of this investigation confirmed that *T. verrucosum* was the prime cause of dermatitis in a young camel. Furthermore, the direct transmission of *T. verrucosum* infection from a diseased camel to this handler elucidates the zoonotic significance of this dermatophytes. The public health importance of zoonophilic dermatophytes is reported earlier by many investigators<sup>3, 6, 7</sup>.

The cultural and morphological studies indicated no difference in the isolates of *T. verrucosum* recovered from animal as well as man. This observation further established that the ringworm in animal attendant was acquired from the diseased camel. The dermatophytosis should be included in the differential diagnosis of dermatitis in camel. This seems to be the first authenticated report of transmission of *T. verrucosum* infection from dromedary to human being.

## Conclusions

Mycotic dermatitis due to *Trichophyton verrucosum* is described in a six-month old male camel and

its 29 year old male attendant. The diagnosis was confirmed both by direct demonstration of fungal elements in the cutaneous lesions by potassium hydroxide technique and also by isolation of *T. verrucosum* from the infected skin scrapings. The lesions in animal were confined on the faces, whereas in human right fore hand was involved. Chemotherapy in camel was done with 2% solution of tincture of iodine and in man 2% miconazole ointment was tried. This appears to be the first report of direct transmission of *T. verrucosum* infection from a dromedary to human being from Indian subcontinent. It is suggested that *T. verrucosum* should be considered in the differential diagnosis of dermatitis in dromedary.

## References

1. Ainsworth GC, Austwick PKC. Fungal Disease of Animals. 2<sup>nd</sup> ed CAB, Farnham Royal slough, England, 1973.
2. Monga DP, Mohapatra LN. A Compilation of published reports of mycoses in India. Mycopathologia 1980; 72: 3-11.
3. Pal M, Dehiya SM, CW. Family pets as a source of *Microsporum canis* infection. Korean J Vet Clin Med 1990, 7: 151-155.
4. Pal M., Hasegawa A., Ono K, Lee CW. A new staining solution for the morphological studies of fungi and prototheca. Jpn J Vet sci 1990; 52: 527-531.
5. Pal M, Lee CW. Dermatophytosis in a barking deer due to *Trichophyton verrucosum*. Korean J Vet Clin Med 1996; 13: 77-80.
6. Pal M, Lee CW. *Microsporum canis* infection in a horse and its transmission to man. Korean J Vet Clin Med 1998; 15: 196-198.
7. Pal M, Matsusaka N. Dermatophytosis in a rhesus monkey (*Macaca mulatta*) and animal attendant, caused by *Microsporum canis*. Verh. Ber Erkr. Zooties 1991; 33: 261-264
8. Rebell G, Taplin D. Dermatophytes : Their recognition and identification. University of Miami Press, Coral Gables, Florida, USA, 1974.
9. Van Cutsem J, Rochette F. Mycosis in Domestic Animals. Janssen Research Foundation, Beerse, Belgium, 1991.