Unique Characteristics of *Microsporum canis* versus *Trichophyton rubrum* in superficial skin infection

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Introduction

An anthropophilic dermatophyte, *Trichophyton rubrum* is the most common isolated pathogens accounting for 80-90% in worldwide and usually causes tinea unguium, tinea pedis, tinea cruris, and tinea corporis. On the other hand, a zoophilic dermatophyte, *Microsporum Canis* often causes tinea capitis in children. Studies examining clinical characteristics of *M. canis* in adult with superficial skin infection is limited.

Objective

To investigate clinical finding of *M. canis* and differences with *T. rubrum* regarding to superficial fungal infections in adult.

Materials and Methods

A retrospective study was conducted at Siriraj Hospital from 2014 to 2016. Adult patients diagnosed as dermatophytosis which direct microscopy revealed septate hyphae and culture were *T. rubrum* or *M. canis* were included. X² or fisher's exact test was used in analyzing the differences between these two entities.

Results

A total of 566 patients were enrolled. The most isolated pathogen was *T. rubrum* found in 518 (91.5%) patients. Median age (years) of *T. rubrum* infections was 57 while that of *M. canis* infections was 39 (p<0.001). *T. rubrum* was mostly isolated from specimens from toenails (26.9%) and feet (18.7%) whereas *M. canis* was commonly found in exposed areas of the body above umbilicus (40%), followed by on scalp and face (14%). *T. rubrum* was isolated from all specimens obtained from

patients with tinea cruris and most specimens from patients with onychomycosis. *M. canis* infections were found mostly in female (93.8%) (p<0.001). The differences in terms of the affected areas from which *T. rubrum* and *M. canis* can be isolated were statistically significant (p<0.001). Infection with *M. canis* was unlikely to have more than two concomitant affected sites. (p<0.001)

Conclusion

Superficial fungal infections with *M. canis* are different in terms of sex, age, anatomical affected sites, and the concomitant number of areas involvement when compared with *T. rubrum* infections. *M. canis* infections were usually found in single upper parts or sebum-riched areas of females in their thirties. Cutaneous infection with *M. canis* also has unique characteristics.

	<i>T. rubrum</i>	<i>M. canis</i>	P-value
	n (%)	n (%)	
	n=518	n=48	
Sex			<0.001
Male	298 (57.5)	3 (6.3)	
Female	220 (42.5)	45 (93.8)	
Age (years), median (P₂₅, P₇₅)	57 (13,95)	39.5 (26.25, 63)	0.005
Regional site	766	57	<0.001
Scalp and face	32 (4.2)	8 (14)	
Body, above umbilicus, exposed	31 (4.0)	23 (40.4)	
Body, above umbilicus, unexposed	68 (8.9)	9 (15.8)	
Groin	131 (17.1)	0 (0.0)	
Body, below umbilicus, exposed	27 (3.5)	7 (12.3)	
Body, below umbilicus, unexposed	33 (4.3)	4 (7.0)	
Hand	26 (3.4)	2 (3.5)	
Feet	143 (18.7)	2 (3.5)	
Fingernail	69 (9.0)	1 (1.8)	
Toenail	206 (26.9)	1 (1.8)	
Number site			0.013
1	338 (65.3)	40 (83.3)	
2	136 (26.3)	7 (14.6)	
More than 2	44 (8.4)	1 (2.1)	
Nail involvement	145	2	<0.001
Fingernail	45 (31)	1	
Toenail	145 (69)	1

M. canis skin infection was common in female and usually occurred in exposed area of the body

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