Original Article

Clinical patterns and etiology of dermatophytosis in 200 cases in Babol, North of Iran

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Abstract

Background: *Dermatophytosis is a very common fungal infection of skin, hair and nail caused by dermatophytes. The purpose of this study was to evaluate the clinical patterns and etiology of dermatophytosis in Babol, Northern Iran.*

Methods: *From September 2003 to December 2005, 200 patients with dermatophytosis who were admitted in the dermatology clinic of Babol Medical University were studied. The diagnosis of the fungal infection was performed in both, direct smear and culture.*

Results: *All patients were positive with direct smear and culture. The frequency of the disease was equal between the male (52%, female (48%)). Tinea cruris (24.5%), tinea pedis (20%), tinea corporis (17%), tinea ungium (15.5%), were the most common dermatophytosis. Trichophyton mentagrophyte was the most prevalent species followed by Epidermophyton floccosum.*

Conclusion: *The results show that tinea cruris and tinea pedis were the most common dermatophytosis in our region. Trichophyton mentagrophyte and Epidermophyton floccosum were the most etiologic agents.*

Key words: *Dermatophytosis, T corporis, Trichophyton mentagrophyte, Epidermophyton floccosum.*

Casp J Intern Med 2010; 1(1): 23-26.

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Received: Sep 5 2009
Revised: Nov 23 2009
Accepted: Jan 31 2010

Superficial fungal infection due to dermatophytosis is one of the most common skin infections in the world. They usually affect the skin, hair and nail but in rare cases they invade the deeper layer of the derm and other organs (1). Despite the topical and systemic treatment, the relapse rate is relatively high (2). The prevalence of dermatophyte in Croatia was reported to be 26% in 1986 and had reached to 73% in 2001. This significant raising in the frequency of this infection was also reported in the other countries (3). Neglecting the patient for treatment and the lack of knowledge of the general physician about of this infection may increase the frequency of disease. Knowing the frequency of this disease and its etiologic agents are important factors for providing the control measures. The purpose of this study was to evaluate the frequency and etiology of dermatophytosis in Babol, North of Iran.

Methods

From September 2003 to December 2005, 372 patients suspected with dermatophytosis admitted in the dermatology clinic of Babol Medical University, were studied. Among them, 200 cases were confirmed to have dermatophytosis. We recorded all the clinical signs and symptoms of the patients and sites of infection in these cases. Samples were obtained from the lesions and were examined with direct microscopic examination using KOH 20% for the clearing of skin samples, KOH plus DMSO for nail clipping and simple lactophenol for hair. All samples were cultured on SCC [sabourud – Glucose - agar (Merck Germany) with chloramphenicol, cyclohexamide (sigma)] slant tubes.

All cultured tubes were incubated at 25 to 30? for 4 weeks aerobically and were checked weekly. The culture were identified on the basis of their macro and microscopic features, hair perforation test, urease and cornmeal agar tests (4). The diagnosis of the fungal infection was confirmed with the positivity of the direct smear and culture. The demographical and clinical data were recorded. The data were analyzed by SPSS. The proportions were compared with Chi- Square and Fisher's exact test.

Results

From 200 patients confirmed to have dermatophytosis 104 (52%) cases were male and 96 (48%) cases were female. The most common age group was 13-30 years (table 1). Tinea cruris (24.5%) was the most common type of dermatophytosis followed by tinea pedis (20%). The distribution of dermatophytosis in the other sites of the body is shown in table 2. T Cruris and T pedis were seen more often in males, but T. corporis, T.capitis, T.manuum, T. faciei and T. ungium were seen more often in females than in males. The frequencies of isolated fungi in culture were as follows; Tricophytone mentagrophytes (50), Epidermophytion floccosum (50), Tricophyton verrucosum (38), Microsporum canis (29). Other fungi isolated are shown in table 2.

Regarding the residential areas of our cases, most of them live in urban areas (54.5%). T capitis, T barbea and T faciei were seen more often in rural residents, but T corporis and T.cruris were more common in urban residents but the differences were not significant.

Table 1: Distribution of dermatophytosis between sex and age groups

Age group	Dermatphytosis		Total
	Male	Female	
0-12	20(69%)	9(31%)	29 (14.5)
13-30	41(44.1%)	52(55.9%)	93 (46.5)
>31	43(55.2%)	35(44.8%)	78 (39)
Total	104(52%)	96(48%)	200 (100)

Table 2. Different type of tinea related to the examination tests and etiological agents

Dermatophytosis	Etiologic agents							Total No(%)
	Mc	Mg	Tv	Tm	Tr	Tvi	Ef	
T.barbae	5	0	5	0	0	0	0	10 (5)
T.Capitis	9	0	7	2	0	2	0	20 (10)
T.Corporis	8	4	8	11	2	0	1	34 (17)
T.Cruris	0	0	0	0	0	0	49	49 (24.5)
T.Faciei	1	1	1	5	0	0	0	8 (4)
F.Manuum	2	0	2	4	0	0	0	8 (4)
T.Pedis	4	0	6	15	11	4	0	40 (20)
T.ungium	0	0	9	13	9	0	0	31 (15.5)
Total	29	5	38	50	22	6	50	200(100)

Discussion

During the last decade, there has been an increased tendency on the part of mycologist to separate the infections that affect the hair, skin and nails. Dermatophytosis is a common human fungal infection. The disease is usually considered as mild cutaneous mycosis, however, severe types also may occur.

In this study, we found that the frequency of tinea cruris, tinea pedis and tinea corporis were higher than the other dermatopyhtes without any differences between the males and the females. Most of the patients were in the age range of 13 to 30 years similar to the results of the other researchers in Iran (5-8). In Tehran, tinea capitis was the most common type of dermatopyhte followed by tinea corporis, tinea manuum, tinea cruris, tinea pedis, tinea faciei and tinea ungium (5). Chadeganipour et al. reported that tinea corporis was the most common type of dermatophytosis in Isfahan (9). They believed that there was a relationship between the distribution of the disease and the livestock infected with dermatophytosis. Babol is located in

the north of Iran with a high temperate humidity which predisposes their local residents to be involved with dermatophytosis. That Tinea cruris and tinea pedis are both diseases occur worldwide and are more prevalent in tropical countries.In our study, E Flucosum was the only dermatophyte isolated from Tinea cruris. E Flucosum was the most frequent dermatophyte from Tinea Cruris (5-7,10). The highest frequency of tinea cruris in the present study was observed in 20 to 30 years old and was confirmed in this age group.

Agarwall et al. reported that tinea corporis and tinea cruris were the two most common isolated dermatophytes among the 100 cases with dermatophytosis (11). A study from Spain reported that tinea corporis was the most and tinea barbea was the least among the very common infections. They also reported that this types of infection were more common in the males than in the females (12).

Among the 1,160 cases of dermatophytosis in Libya, it showed that the frequency of tinea corporis was 45.9% and 85% of the cases with age less than 15 years old. They also showed the frequency of other dermatophytes like tinea pedis (8.1%), tinea mannum (2.6%), and tinea barbea (2.2%) in these cases (13).

T. corporis and T. capitis were the most isolated dermatophytes among the 94 young individuals with dermatophytosis in Poland (14). Tinea capitis was a common dermatophytosis in children (15). All patients affected with T. capitis were the children and the disease was more prevalent in the female.In this study, M. canis and T. Verrucosum were the most causes of tinea capitis and this observation coincided with other reports in Iran (6,8,15,16). M. canis and T. Verrucosum are the main etiologic agents of ringworm in animals (17). In this study,ectotrix was a common type of T. Capitis and only 2 cases of endoterix with Violaceum were detected in Basre (Iraq) and the main cause of tinea capitis has been reported to be M. Canis 63.3% followed by T. Violaceum and T. Verrucosum (18). A study in Rome, Mercantini and Moreti found that T. Violaceum was the cause of 2.4% of all cases of T Capitis (19). Omidynia et al. reported T. Schenleini as a common etiologic agents of T. Capitis in Hamedan Province. It seems that the probable reasons were the temperature and humidity for causing the differences in the different cities incidences of dermatophytosis (20). Therfore, the rise in the frequency of anthropophilic species is due to a higher temperature and humidity.

Other studies in Europe showed that T. ungium was the most common isolated dermatophyte which was seen more often in older age, in males, and the lesion was seen more often in the urban residents (21). Tinea ungium has been extensively investigated in the general population (22,23). In our study, tinea ungium was seen following tinea cruris, tinea pedis and tinea corporis and there were not any significant differences regarding age or urban or rural residency among the patients. Tinea mentagrophytes was the most common dermatophytes isolated type form T. Unguim followed by T. Rubrum. Tinea facie was more common in patients older than 15 years, whereas, tinea manum was common in adults older than 20 years. These results confirmed the findings of other researches in Iran (6).

In conclusion, the results show that tinea cruris and tinea pedis were the most common dermatophytosis in our region. Trichophyton mentagrophyte and epidermophyton floccosum were the most etiologic agents. Zoophilic species of dermatophytes were mainly the most common agents for dermatophytosis.

Acknowledgment

The authors would like to thank the personnel of Dermatology and Mycology Clinic of Babol Medical University for their help in performing this study.

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