

## Short Communication

## Dermatomycoses among Students in a School Dormitory in Semnan

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### Abstract

**Background:** Dermatomycoses are a major public health problem. Tinea cruris is a form of Dermatomycoses. Tinea cruris is a common infection in the groin area, genitals, pubic area, perineum and perianal skin. The purpose of this study was to investigate the cutaneous fungal infections among students in a school dormitory. **Materials and Methods:** The study was performed on 110 male students dormitory aged between 18 to 28 years. From the specimens obtained, direct preparations were made using 10% potassium hydroxide and cultured on Sabouraud dextrose agar containing 0.05 mg/ml chloramphenicol and 0.5 mg/ml cycloheximide (Sec). Identification of fungi was performed according to morphologic and microscopic growth of the colonies and using slide culture method. **Results:** 17 people out of 110 individuals were diagnosed with cutaneous fungal infections. Six people were diagnosed with dermatophytosis. All cases of dermatophytosis were Tinea cruris. Epidermophyton floccosum, the anthropophilic species, was only isolated dermatophyte. The prevalence of Tinea cruris was 5.5% and the prevalence of Pityriasis versicolor was 4.5%. **Conclusion:** The most important source of transmission of anthropophilic dermatophyte species was by men to men. The results of this study is similar to most other studies in Iran and other countries. In addition to treatment, other necessary steps should be applied in order to prevent infection and reduce the risk of pathogens.

**Keywords:** Dermatomycoses, Dermatophytosis, Epidermophyton, Tinea cruris

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### Introduction

The Dermatomycoses or dermatophytosis includes a variety of diseases that the skin, the hair, the nails are involved. The possible causes have been attributed to a group of keratinophilic fungi called dermatophytes. The disease is limited the stratum corneum. There is a variety pathological changes in the host due to the presence of infectious agents and their metabolic products [1, 2]. Dermatophytoses have been divided into different clinical forms of *tinea*

*capitis, tinea corporis, tinea cruris, tinea unguium, tinea manuum, tinea pedis, tinea barbae*. This infection is found in all parts of the world, but their prevalence in different regions varies depending on the cultural, hygienic and economic [1]. *Tinea cruris* is a form of dermatophytosis. *Tinea cruris* is a common infection in the groin area, genitals, pubic area and perineum and perianal skin. It manifests as an acute or chronic, often accompanied by severe itching. The lesions are a ringed plaque with an erythematous, scaling, and clearly outlined. This disease is considered a disease

of sedentary people. This disease is often accompanied by *tinea corporis*. The incidence of *tinea cruris* is very high among dermatophytic infection because of this anatomical region due to certain conditions, the continuing erosion, excessive sweating, wet and crush the local corneum cells, skin pH changes, exercise, wearing tight clothing and nylon clothes are susceptible to fungal infections [3].

The disease is most common in men and mostly is observed in adults in the second and third decades of life. There is disease in all over the world, but its prevalence is higher in the tropics. The disease agent in most parts of the world is often *Epidermophyton floccosum*. *Trichophyton rubrum* and *Trichophyton mentagrophytes* are the next rank. Dermatophytes agents are transmitted through direct contact with an infected person or indirectly through contaminated clothing and may cause epidemics in public areas such as common bathing facilities, dormitories and among military recruits [4]. The purpose of this study was to investigate the cutaneous fungal infections and identify virulence factors among male students at the dormitory.

## Methods

The statistical study was performed on 110 students (all men) in a school dormitory, aged between 18 to 28 years. Affected individuals filled a questionnaire. Students were advised to refrain from any medication for at least 7-10 days of topical and oral antifungal and also forbidden to bath in the 2-3 days before sampling.

Direct preparations were made using 10% potassiumhydroxide. For yeast like fungi gram

stained preparations were used and cultured on sabouraud dextrose agar with 0.05 mg/ml chloramphenicol [5] and sabouraud dextrose agar with 0.05 mg/ml chloramphenicol and 0.5 mg/ml cycloheximide (Scc). The plates were incubated at 25°C for 3–5 weeks. Identification of fungi performed according to morphologic and microscopic growth of the colonies and using slide culture method [6].

## Results

17 people out of 110 individuals were diagnosed with superficial and cutaneous fungal. We examined these part of patient bodies for sampling (eight cases with the groin, three cases with the regions between 4<sup>th</sup> and 5<sup>th</sup> feet fingers and parts of the legs, chest, neck, shoulder, abdomen and pelvic each case).

Six people were diagnosed with dermatophytosis. Direct examination and culture were positive. In all cases of dermatophytosis *Tinea cruris* and *Epidermophyton floccosum* were identified as the causative agent. The prevalence of *Tinea cruris* and *Pityriasis versicolor* were 5.5% and 4.5%, respectively. In this study we found three cases of Candidiasis and one case with Erythrasma (Table 1).

## Discussion

Due to the importance of dermatophytic infections in human, several studies have been conducted to identify and plan for the control of pathogens. Considering that the *Tinea cruris* is one of the most common forms of dermatophytosis, Several studies have been done in Iran and all over the world

**Table 1:** Frequency of Dermatormycoses among students in a school dormitory.

Name of Fungal Infections	Number	Frequency of the disease among infected individuals Percentage (%)	Frequency of the disease indormitory Percentage (%)
<i>Tinea cruris</i>	6	40	5.5
Pityriasis versicolor	5	33.3	4.5
Candidiasis	3	20	2.7
Erythrasma	1	6.7	0.9
Total	15	100	13.6

to assess the prevalence and risk factors [6-17]. In the study performed by Falahati in Tehran, most of the patients were male with aged between 20-29 and *E. floccosum* was the most frequently isolated dermatophyte [18]. In many studies *Epidermophyton floccosum* was the most frequently causative agent of dermatophytosis [14, 19-21]. In another study carried out in Qazvin by Aghamirian MR, it was showed *Tinea cruris* is a major type of superficial fungal infection and *Epidermophyton floccosum* was the most frequently isolated species in Iran [22]. Our results were similar to these reports mentioned above. In the present study, the prevalence of *Tinea cruris* was 5.5% and *Epidermophyton floccosum*, an anthropophilic species, was only isolated dermatophyte. The most important source of transmission of anthropophilic dermatophyte species was by men to men. In recent decades, etiological role of some anthropophilic dermatophytes has become evident all over the world [23]. According to reports, this organism has been isolated from various animals such as mice and dogs [24]. Due to the presence of animals around the dorm, it was suggested it might be a possible for existence of *Epidermophyton floccosum*. Therefore, further studies are needed to investigate the existence of fungi in mice.

In this study, in addition to dermatophytes, other fungi including, *Candida*, *Malassezia* and *Corynebacterium minutissimum* were isolated from individual lesions. The results of this study showed that the majority of groin lesions are caused by dermatophytes. Higher incidence of *Tinea cruris* in men may be related to more contact with infected agents and the use of clothes and towels in common with friends and lifestyle. Also they usually wore tight jeans for long hours. This could be caused by warm and humid environment that encourages tinea infection. *Tinea cruris*, is reported to be associated with the use of tight undergarment and tight jeans by Ogba [3]. Therefore, attention to hygiene, especially in public places of accommodation and strategies should be established to prevent mice from entering dorms. Disease control programs without the knowledge about the epidemiology of the disease would not be possible because this information will accelerate decisions and facilitate therapeutic approach for preventing disease.

## Conflicts of Interest

The authors declare that there are no conflicts of interest.

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