



Prevalence of Tinea Infection in District Swat

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ABSTRACT

The mycotic infections of skin are important communicable infections of skin, hairs and nails and are distributed worldwide. The aim of the study was to find out the prevalence of Tinea infections in District Swat, Khyber Pakhtunkhwa. A total of 190 patients were reported from different hospitals and private clinics. Forty samples obtained from different parts of body including infected skin, nails, hairs were cultured. On the basis of morphological traits 120 fungus colonies were obtained on PDA medium. In our results 12 different fungus were isolated. These were 25 % *Trichophyton rubrum*, *Candida* species 19.4 %, *Penicillium* species 16.6 %, *Aspergillus* species 11.1 %, *Microsporium canis* and *Alternaria* species 5.5 % while *Trichophyton basicola*, *T. tonsurans*, *T. violaceum*, *T. verrucosum*, *Epidermophyton floccosum* and *Aureobasidium pullans* have 2.7 %. On the basis of geographical condition high prevalence was observed in warm region of Mingora 45.7 % followed by Matta 22.6 % and minimum of 11 % in colder region of Kalam. The maximum prevalence of Tinea infections was recorded in age group 1 -10 years followed by 11-20 years of age with 24.2 % and 23.1%, respectively. Males had maximum prevalence of 55.2 % and females had 44.7 %. Further, farmers were reported high number of infection of 32.1 % followed house wives 24.7 %.

Key words: Prevalence, Tinea infection, District Swat

Discussion

Tinea infections show variation in their prevalence and depend mainly on geographical location and socio-economic status (Havlickova *et al.*, 2008). The present study showed variation in its prevalence in all studied regions of Swat. According to **Table 3.1**, various types of fungi have the ability to cause Tinea infections and showed variation in pathogenicity and prevalence. Result of our present study showed high number of Tinea infections, i.e., 190 patients in different areas of district Swat during the studied period of time. This high prevalence in Mingora followed by Matta region as warm and humid. The environmental conditions of these locations favor the growth and propagation of the pathogens. Similar results have been reported in other countries of different continents like Europe, Asia, Africa, North America (Merlin *et al.*, 1999; Macura, 1993). Our results are also in agreements with Hainer, 2003. According to him Tinea infections are more common in damp and warm climates. According to Warnock and Campbell, 1996 the survival of pathogen less in dry and cold environment. Kalam region has colder climate in longer period of time and that is why it has lesser percentage as compared to other studied area.

It is well reported that various types of keratin degrading fungi has been associated with Tinea infections. They have various in symptoms expression and infected different parts of the body. According to (Havlickova *et al.*, 2008; Ameen, 2010) *Trichophyton species*, *Microsporium species*, *Epidermophyton species* are the major pathogen groups of Tinea infections. The present study showed that 12 different species of fungi isolates from different infected body parts i.e., infected hairs, nails and skin. Similar results were observed by (Cervellati *et al.*, 2004) they reported that 90% of tinea infection were due to *Trichophyton rubrum*.

Gupta *et al.*, 2014 and Eziyet *et al.*, 2015 studies that Tinea infections showed various prevalence in gender wise distribution. According to them males are more infected than females. Our results also show the high prevalence of Tinea infections in males than females. The possible reason for this is exposure to infection sources and suitable environment for growth of pathogen. Our results are also in line with Moto, 2014. Similarly, it is reported that percentage in male is high than females. Fathi and Al-samari (2000) reported that uneducated peoples have high rate of Tinea infection as compared to educated persons. Our results are in line with them. This can be explained that educated peoples have more awareness about disease as compared to uneducated persons. The present research also with the agreement of (Fathi and Al-samarai, 2000)

It is well documented that socio-economic status i.e., low standard of living, poor hygienic and overcrowded living condition and cultural process have high influence prevalence of Tinea infections (Ameen, 2010; Havlickova *et al.*, 2008). Our study agreed with these researchers as district Swat has more rural areas and people has low standard of life. Mingora over crowded area, hygienic condition is below the standard especially the barbers do not have information of awareness about the diseases. Swat region has mostly joint families' system and more than one family lives in same house.

Introduction

Tinea (skin Disease) are caused by different species of keratinized fungi, collectively known as Dermatophytes. Mycoses have been reported increased up to 20-25% of the world population. Pakistan have high rate of the disease but no statistical data is present. Three Dermatophytes genera (*trichophyton*, *epidermophyton* and *microsporium*) grow well in temperature 25-28 °C with warm and humid conditions. Symptoms are limited to keratinized tissues. Transmission is either by direct from infected person or indirectly from fomites. Population living in crowded and unhygienic conditions are at high risk. Diagnosis of tinea is based on clinical history, physical examination, microscopic examination and molecular techniques. Most tinea infections are treated with topical antifungal, shampoos and systemic antifungals. For effective treatment, the types of pathogenic species and environmental conditions are important.

Materials and Methods

The samples were collected from different hospitals at District Swat, KPK, Pakistan during Feb 2016 to Sept 2016. These samples were grow on PDA media and incubated for 5-10 days. All plates were identified under microscopic study for different taxonomical traits. The observed characteristics were compared with the key monographs on Dermatophytes at www.microbesworld.org, the identified fungi were sub cultured on PDA to obtain pure culture.

Conclusion

Our present research concluded that high number of Tinea infections, i.e., 190 patients prevails in different part of District Swat. A total of 12 different species of fungi isolated from different infected body parts, i.e. infected hairs, nails and skin. The high prevalence was reported in low socio-economic status, i.e., low standard of living, poor hygienic and overcrowded living condition. Male and child of school age are infected more as their exposure to infection sources, poor hygienic conditions, close contact with infected patients, school and house hold overcrowding. Similarly, high infection was reported in farmers followed by housewives. It is suggested that farmers have close contacts with zoophilic and geophilic dermatophyte fungi. The possible explanation for the high prevalence for house wives are they perform all house activities, i.e., Landry washing, cleaning, sweeping (possible source of infection) without care.

To avoid or minimize the Tinea infections the following recommendations are to be followed:

- People shall be educated about Tinea infections to apply good hygienic habits.
- Tinea infections favor warm and humid conditions so the people who are at high risk of infection shall wear loose fitted clothes and shoes.
- The disease shall be proper diagnosed and treated to avoid the spread of disease to other parts of the body or other community. The person infected from Tinea infections shall not share his daily use articles and should apply good hygienic conditions.

Acknowledgement:

| Location | No of Patients | Prevalence % |
|-------------|----------------|--------------|
| Kalam | 21 | 11 |
| khwazakhela | 39 | 20.5 |
| matta | 43 | 22.6 |

Number & percentage of Tinea infection of Dist Swat

| Area's name | Males patients | % | Female patients | % |
|-------------|----------------|------|-----------------|------|
| Kalam | 12 | 6.3 | 9 | 4.7 |
| K.Khela | 25 | 13.1 | 14 | 7.3 |
| Matta | 25 | 13.1 | 18 | 9.4 |
| Mingora | 43 | 22.6 | 44 | 23.1 |

No & % of Tinea infected male & female

| profession | No | Percentage (%) |
|---------------------|----|----------------|
| Teachers | 13 | 6.8 |
| House wives | 47 | 24.7 |
| Doctors | 4 | 2.1 |
| Farmers | 61 | 32.1 |
| Schooling child | 30 | 15.7 |
| Non-Schooling Child | 16 | 8.4 |
| Others | 19 | 10 |

No & % of tinea infection in different occupation

Emmons CW. (1934) Dermatophytes: natural grouping based on form of the spores and accessory organs. Arch Dermatol. 1934; 30: Pp. 337-362

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www.microbesworld.org.

| Age group | No of patients | % |
|-----------|----------------|------|
| 1 to 10 | 46 | 24.2 |
| 11 to 20 | 44 | 23.1 |
| 21 to 30 | 29 | 15.2 |
| 31 to 40 | 36 | 18.9 |
| 41 to 50 | 18 | 9.4 |
| Above 50 | 17 | 8.9 |

No & % of Tinea infection in different age groups

| S. No | Organism | Fr eq | % |
|-------|--------------------------|-------|------|
| 1 | T rubrum | 18 | 25 |
| 2 | T basicola | 2 | 2.7 |
| 3 | T tonsurans | 2 | 2.7 |
| 4 | T violaceum | 2 | 2.7 |
| 5 | T verrucosum | 2 | 2.7 |
| 6 | Microsporium canis | 4 | 5.5 |
| 7 | Epidermophyton floccosum | 2 | 2.7 |
| 8 | Candida spp | 14 | 19.4 |
| 9 | Aureobasidium pullans | 2 | 2.7 |
| 10 | Alternaria spp | 4 | 5.5 |
| 11 | Aspergillus spp | 8 | 11.1 |
| 12 | Penicillium spp | 12 | 16.6 |

Frequencies of different microbes isolated from tinea infected patients