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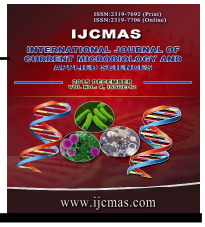


Original Research Article

Clinicomycological Study of Dermatophytes in Solan

Shikha Jain* and Vishal Sharma

Maharishi Markendeshwar Medical College and Hospital, Solan
**Corresponding author*

Keywords

Dermatophytes, *Trichophyton mentagrophytes*, Sabouraud dextrose agar, Dermatophyte test medium, Tinea corporis

A B S T R A C T

To isolate and identify various dermatophytes from clinically suspected cases of dermatophytoses. Clinical specimens from various suspected cases of dermatophytosis attending the out-patient department of Dermatology, Maharishi Markandeshwar Medical College and Hospital, Solan were studied in Microbiology Department over a period of one year. Skin scrapings, nail clippings, hair stubs were collected from patients by standard procedures. Samples were processed by 10-40% potassium hydroxide mount, culture was done on Sabouraud dextrose agar with chloramphenicol and actidione and on dermatophyte test medium. Seventy cases (58.3%) were positive for fungus in direct microscopy while forty eight (40%) were culture positive. *Trichophyton mentagrophytes* 24 (50%) was found to be the commonest isolate followed by *Trichophyton rubrum* 15 (31.3%), *Epidermophyton floccosum* 4 (8.3%), *Trichophyton tonsurans* 2 (4.2%) and *Microsporum* species 3 (6.2%). *Trichophyton mentagrophytes* was the commonest isolate. Mycological examination aids in the diagnosis of various dermatophytoses for their effective management.

Introduction

India is a large subcontinent with remarkably varied topography, situated within the tropical and subtropical belts of the world. Its climate is conducive to the acquisition and maintenance of mycotic infections. This prospective study was therefore undertaken to identify, speciate and study the prevalence of dermatophytosis from various clinical samples in patients of our tertiary care teaching institute.

The dermatophytes are a group of closely related fungi that have the capacity to invade keratinized tissue (skin, hair, and nails) of humans and other animals to produce an infection, dermatophytoses, commonly referred as ringworm (Chander, 2002). Dermatophytosis are most frequent types of cutaneous fungal infections seen in man that affects skin, hair, and nails (Doddamani *et al*., 2013).

The etiologic agents of the dermatophytoses are classified as, *Trichophyton, Microsporum* and *Epidermophyton* and they are differentiated on the basis of conidiospore formation (Larone *et al*., 2002).

Materials and MethodS

A total of 120 clinically suspected cases of tinea infections in the out-patient department of dermatology, Maharishi Markendeshwar Medical college and hospital, Solan were studied in microbiology departmnent. A detailed clinical history was taken including age, sex, duration and type of lesion, any history of contact, any local or systemic antibiotic therapy. Patients were examined and depending upon the site of involvement were grouped into different clinical types.

Skin scrapings, nail clippings, hair stubs were collected from patients by standard protocols (Koneman *et al 1997* , Padhye *et al* 1998) . Specimens were subjected to 10-40% potassium hydroxide (KOH) mount and examined for the presence of fungal hyphae and arthrospores. Culture was done on Sabouraud dextrose agar with chloramphenicol and actidione and on dermatophyte test medium (Hi Media, Mumbai, Maharashtra). The media were incubated at 25^0C and 37^0C for a minimum period of three weeks. Positive cultures were examined both macroscopically and microscopically for species identification. Special tests such aslactophenol coon blue mount, urease test, hair perforation test were done wherever required.

Results and Discussion

Majority of patients were from younger age group (20-30years). Of all the specimens receieved skin scrapings 94 (78.3%) were in majority followed by hair 15 (12.5%) and nail clippings 11 (9.2%). Males 82 (68%) outnumbered the females 38(32%). Out of 120 suspected cases of tinea infections, 70 were KOH positive and 48 were culture positive. Of these, 40 cases were positive by both KOH and culture, 30 cases were positive by KOH and negative by culture, 8 cases were negative by KOH but culture positive, 42 cases were negative by both KOH and culture as shown in table 1 and figure 1.

Table 2 depicts the various species of dermatophytes isolated according to the site of involvement. Species of dermatophytes isolated were *Trichophyton mentagrophytes* 24 (50%) followed by *Trichophyton rubrum* 15 (31.3%), *Epidermophyton floccosum* 4 (8.3%), *Trichophyton tonsurans* 2 (4.2%) and *Microsporum* species 3 (6.2%). Results are shown in the figure 2.

In our study culture was positive in 40% (48/120) of the cases . Different studies have reported culture isolation rate varying from 7% to 49% (Gupta *et al*., 1959, Bhaskaran *et al*., 1977).

In the present study, the most common tinea infection was Tinea corporis (33.3%), followed by Tinea capitis, Tinea cruris, Tinea pedis, onychomycosis and Tinea mannum. Our results are comparable with the study of Suman *et al*., 2003, in which 58% of tinea infection cases were Tinea corporis followed by Tinea cruris. Similar findings have benn reported by Sharma *et al.,2012* in their study.

Trichophyton mentagrophytes 24 (50%) was found to be the commonest isolate followed by *Trichophyton rubrum* 15 (31.3%). This is in contrast with the study done by Suman *et al*., 2003 in which *Trichophyton rubrum* was the commonest isolate (isolation rate 73.27%) followed by *Trichophyton mentagrophytes* (17.24%). Another study showed contrasting results in which *Tricophyton rubrum* (46.87%) was the commonest aetiological agent in majority of clinical types followed by *Trichophyton mentagrophytes* (36.46%) (Doddamani *et al*., 2013).

In conclusion, *Trichophyton mentagrophytes* was the commonest isolate followed by *Trichophyton rubrum*. Present study suggests that mycological examination of causative agent aids in the diagnosis of various dermatophytoses so that effective management can be done.

Table.1 Results of Direct Examination and Culture

Culture	KOH positive	KOH negative	Total
Culture positive	40	08	48
Culture negative	30	42	72
Total	70	50	120

Table.2 Correlation Between Clinical and Mycological Findings

Tinea infections according to site of involvement	Dermatophytes isolated	No. of cases	Percentage
Tinea corporis	*Trichophyton mentagrophytes*	9	
	Trichophyton rubrum	5	
	Trichophyton tonsurans	2	33.3%
Tinea cruris	*Trichophyton mentagrophytes*	3	18.8%
	Trichophyton rubrum	6	
Tinea pedis	*Trichophyton mentagrophytes*	7	14.6%
Tinea capitis	*Trichophyton mentagrophytes*	3	
	Trichophyton rubrum	4	
	Microsporum species	3	20.8%
Tinea mannum	*Trichophyton mentagrophytes*	2	4.2%
Onychomycosis	*Epidermophyton floccosum*	4	8.3%

Figure.1 Results of Direct Examination and Culture

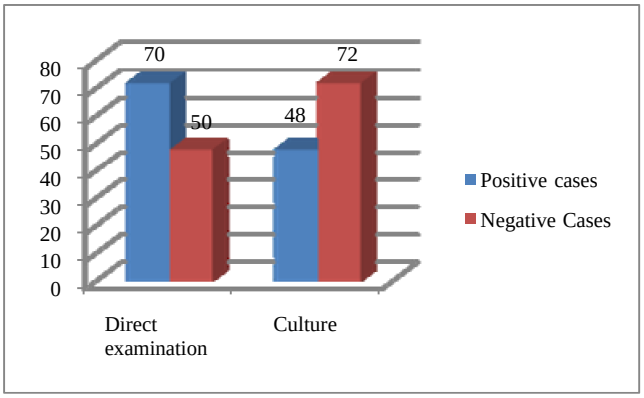
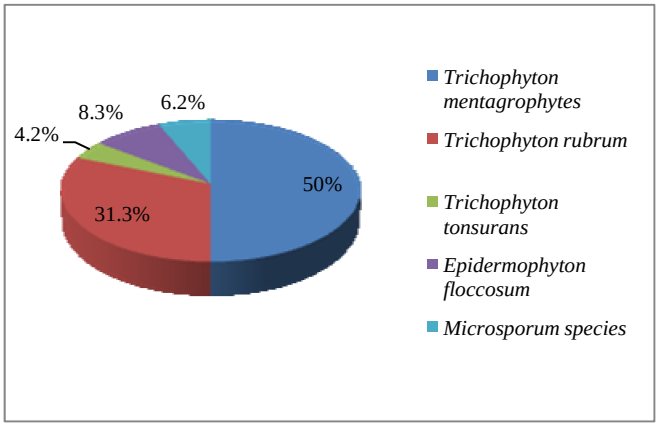


Figure.2 Percentage of Various Dermatophytes Isolated



Reference

Bhaskaran C.S., Rao P.S., Krishnamoorthy T., et al. 1977. Dermatophytoses in Tirupati (Andhra Pradesh). Indian J Pathol Microbiol , 20, 251-255.

Gupta RN, Shome SK. 1959. Dermatomycoses in Uttar Pradesh- an analysis of 620 cases. Indian J Med Assoc, 33, 39-43.

Jagdish Chander. 2002. Text Book of Medical Mycology. 2nd Edn. Mehta Publishers, New Delhi, India.

Koneman EW, Allen SD, Janda WM, Schreckenberber P, Win WC Jr. 1997. Color atlas and textbook of diagnostic microbiology. 8th ed. Philadelphia: JB Lippincott.

Larone, D.H. 2002. Medically Important Fungi: A Guide to Identification. 4th Edn., Washington DC, American Society for Microbiology Press.

P. V. Doddamani et al. 2013. Isolation, Identification and Prevelance of Dermatophytes in Tertairy Care Hospital in Gulbarga District. People's Journal of Scientific Research, 6(2), 10-13.

Padhye AA, Weitzman I: The Dermatophytes. In: Topley & Wilson's Microbiology and Microbial Infection (Medical Mycology ;vol. IV). L Ajello, RJ Hay, L Collier, A Balows, M Sussman. 1998. 9th Edn. Arnold publication, Great Britain , 215-225.

Suman, S., Beena, P.M. 2003. Profile of dermatophyte infections in Baroda. Indain J Dermatol Venereal Leprol, 69, 281-283.

Sharma R, Jasuja ND, Sharma S. 2012. Clinical and mycological study of der matophytosis in Jaipur (India). Int J Phar Pharm Sci, 4(3), 215-17.