
Mycological Study of Tinea Versicolor at a Tertiary Care Centre

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Abstract

Introduction: Pityriasis versicolor occurs in both sexes and is not limited to any race. It occurs from childhood to old age but is seen most often in young adults. It is widely distributed in tropical and temperate climate. The fungus has not been found as a free living saprophyte and it is probable that it spreads from person to person directly or indirectly by exposure to desquamated epidermis. *Methodology:* The site from which the materials was to be collected, was cleaned with the help of gauze piece and surgical spirit and was allowed to dry and then scales were scraped with the help of a blunt scalpel and the scraped material was collected in the butter paper and then part of it was used for direct microscopic examination and part of it was transported to the microbiology laboratory for further investigations. *Results:* It was observed, in this study, VDRL test was reactive 1:64 and ELISA test for HIV was negative in primary syphilis. VDRL test was non reactive and ELISA test for HIV was negative in Herpes simplex. 8 patients had associated dermatophytic infection (tinea cruris, tinea corporis, tinea manuum). *Conclusion:* There was no fungus growth in culture media.

Keywords: Pityriasis Versicolor; Mycological Study; Dermatophytic Infection.

Introduction

The casual fungus *Malassezia furfur* is a member of normal microflora of the skin of many individuals and is contagious. Spread of the disease, although it occasionally occurs, is not thought to play a significant role in its epidemiology. Consequently the condition which leads to the development of the disease, although not precisely known are most likely to be related to host or environmental factors. There is a much higher incidence of infection in warm climates than in temperate zones and also in individuals with illness causing high temperature or necessitating long periods of confine to bed indicating that excessive sweating is probably one of the predisposing factors. The disease is not contagious. Conjugal incidence is not greater than would be expected from chance alone and hygiene has little to do with it. Hereditary, predisposition is likely [1].

Pityriasis versicolor occurs in both sexes and is not limited to any race. It occurs from childhood to old age but is seen most often in young adults. It is widely distributed in tropical and temperate climate. The fungus has not been found as a free

living saprophyte and it is probable that it spreads from person to person directly or indirectly by exposure to desquamated epidermis [2].

The age distribution of the series as a whole is very similar to that generally accepted for temperate climates, in that young adults are mainly affected. In contrast to the finding of Michalowski no cases of pityriasis versicolor were seen in infants, pre pubertal children or the elderly.

The youngest patients of the both the sexes were 12 years old at the time of onset. The oldest man was 45 and the oldest woman was 43. The age of onset was 24 years for males and 21.8 years for females in the United Kingdom. Pityriasis versicolor was found to be prominent in the age group of 21 - 30 years. Nanda et al (1988) at Chandigar, India, reported for five infants (four males and one female) with the disease pityriasis (tinea) versicolor. Three patients had lesions in the neonatal period [3].

The disease is of world wide distribution and found in all races. Case reports upto 50% have been reported in Mexico, Samoa, Fiji, Central and South America, India, Parts of Africa, Cuba, West Indies and the Mediterranean region.

In temperate zone the condition is rare in childhood but becomes commoner in the late teens with a peak in the early twenties. In tropical climates the condition is more common than the temperate zone and as many as 40% of some population may be affected. Although no reliable figures are available for colder climate, the prevalence is almost containing less than 1%.

In temperate zones among patients who can give a reliable history the onset is more often in the warmer months of the year. There does seem to be an association between excessive sweating and pityriasis versicolor but only of the flexural type. Poor personal hygiene was not a feature in any of the patients seen personally and was not sufficiently striking to be mentioned in any of the hospital records in the retrospective series [4].

As the condition is not very troublesome and quite often passes unnoticed, a good number of patients, therefore do not consult the dermatologist and moreover the disease is not notifiable anywhere in the world, so the exact statistics are not available. As per the Londero A.J. et al (1964) the incidence of tinea versicolor in the region of Brazil is 36% of the population.

Methodology

100 patients of untreated tinea versicolor who attended the out patient department were selected at random irrespective of their age, socioeconomic status, occupation. A detailed history was taken, regarding the age, sex, religion, occupation, socioeconomic status, residence, duration and course of the disease, site of distribution of lesion and any other associated cutaneous and systemic diseases. A detailed general physical examination was conducted in all the patients and also the systemic examination were done routinely.

Thorough cutaneous system examination was made in bright natural day light to study the precise distribution and morphology of lesions and also looked for associated conditions. And the cases which were clinically, provisionally diagnosed as tinea versicolor, were investigated.

Collection of the Specimen

The site from which the materials was to be collected, was cleaned with the help of gauze piece and surgical spirit and was allowed to dry and then scales were scraped with the help of a blunt scalpel and the scraped material was collected in

the butter paper and then part of it was used for direct microscopic examination and part of it was transported to the microbiology laboratory for further investigations.

The scraped material taken from the lesion of tinea versicolor, was mounted on a clean glass slide and about 2 drops of 10 percent potassium hydroxide (KOH) is poured on it and it is covered with a cover-slip and the material kept aside for dissolving and separation of fungus from cornified material for about 20 minutes. After 20 minutes the cover-slip is gently pressed and excess KOH which comes out from under surface of cover-slip is blotted with the help of a blotting paper and then the slide is mounted on the microscope. The preparation was first examined under low power for suspected fungal elements and then under high power 40 X objectives. By this method filaments having tendency to break into short segments of various sizes and grape like clusters of round cells with occasional buds were seen.

Results

Tables 1: Showing the severity of the itching

Sex	Absent	Mild	Moderate	Severe
Male	44	32	3	-
Female	9	11	1	-
Total	53	43	4	-

The table 1 shows, in 53 (53% cases the lesions were mainly asymptomatic, in 43(43%) there was mild itching and in 4 (4%) cases there was moderate itching.

Table 2: Showing the sites of involvement

Site involved	No. of patients	Percentage
Scalp	Nil	-
Face	13	13
Neck	69	69
Chest	78	78
Abdomen	26	26
Back	50	50
Shoulder	17	17
AXilla	9	9
Upper limb	8	8
Cubital fossa	14	14
Fore arm & Hand	Nil	-
Lower limb	2	2

The table 2 shows the pattern of distributions of lesions on different sites of the body. Chest was the commonest site to get involved in 78 patients (78%). Only two (2%) patient had lesions on the lower limb (thigh and popliteal fossa).

The lesions are localized in 18 cases and in remaining 82 cases, they are extensive.

Table 3: Showing the pigmentations of the lesions

Pigmentation	Male	Female	Total
Hypo	60	15	75
Hyper	11	3	14
Hypo and Hyper	8	3	11
Total	79	21	100

The table 3 shows, in 75 (75%) cases there was a hypopigmented lesions. In 14 (14%) cases, the pigmentation was hyper and in 11 cases (11%) there were both hypo and hyper pigmented lesions.

In 98 (98%) case the lesions were macules and scales. In 1(2%) cases the lesions were follicular in nature.

The shape of the lesion was round and irregular in all the cases. Size of the lesions varied from pin head to few centimetres.

Laboratory procedure

In all 100 cases skin scrapings from tineaversicolor lesions were subjected to direct microscopic examination.

With KOH Preparation

The fungal elements were seen as multiple short hyphae and grouped and clumped spores giving appearance of typical "spaghetti and meat ball" as described.

All the 100 cases were positive for fungal elements. These samples sent for culture but no growth was reported.

Table 4: Associated dermatoses and systemic diseases

Diseases	No. of Cases	Percentage
Acne vulgaris	3	3
Tineacruris	5	5
Tineacorporis	2	2
Tineamanum	1	1
Leprosy	2	2
Scabies	3	3

Diseases	No. of Cases	Percentage
Vitiligo	1	1
Meldsma	1	1
Echthyma	1	1
Cafe-au-fait spots	1	1
Bockhart's impetigo	1	1
Lichen planus	1	1
Pityriasisrosea	1	1
Pemphigus vulgaris	1	1
Primary syphilis*	1	1
Contact dermatitis	1	1
Infeced eczema	2	2
Fissure feet	2	2
Herpes simplex (genital)*	1	1
Duodenal ulcer	1	1
Pulm. T.B. with drug reaction	1	1

* Blood VDRL & ELISA (for HIV) test done.

It was observed, in this study, VDRL test was reactive 1:64 and ELISA test for HIV was negative in primary syphilis. VDRL test was non reactive and ELISA test for HIV was negative in Herpes simplex. 8 patients had associated dermatophytic infection (tineacruris, tineacorporis, tineamanum) (Table 4).

Discussion

Majority of the patients (53%) were asymptomatic, 43% patients had mild itching. However 4% patients had moderate itching. Gurmohan Singh et al. [5] and Kuchbal D.S. [6] observed itching of varying degree in 29% and 30% of their cases respectively.

In the present study chest (78%) was the commonest site to be involved, followed by the neck (69%) and back (50%). In similar studies, Gurmohan Singh et al. [5], Robert [7] and Kuchbal D.S. [6] showed the chest involvement (66%), (96%) and 68% respectively.

Robert [7] reported neck involvement in 64% of patients which correlated with the present study. Neck involvement in the studies of Gunnohan Singh et al. [5] and Kuchbal D.S. [6] was in 38% and 39% of patients which is lower compared to the present study. Abdominal involvement in the studies of Robert [7] and Kuchbal D.S. [6] found 80% and 12% respectively, whereas in this study it was 26%. Gurmohan Singh et al., Robert and Kuchbal

D.S. in their study reported the axillary involvement in (18%), (24%) and (19%) respectively, which are quite high compared to this study (9%). In similar studies on facial involvement Gurmohan Singh et al and Robert found (50%) and (4%) respectively.

In the former study it is quite high and in the latter it is low incidence than the present study, where the face was involved in 13% of patients. However this study correlates with the findings of Kuchbal D.S. who observed facial involvement in 12% of patients. 4% of scalp and 1% genitalia involvement were seen in the report of Robert (1969) but in studies of Gurmohan Singh et al. Kuchbal D.S. and also the present study there were no involvement of scalp and genitalia. 8% of the patients had leg involvement in the studies of Gurmohan Singh et al. and Kuchbal D.S.

However in this study involvement of legs were not seen and forearm and hand involvement was also not seen. In majority of the cases (82%), lesions were seen in more than one area. Similar findings were also seen in the various studies reported above.

Seventy five percent (75%) of the patients in this study had hypopigmented lesions, this was similar to the studies of Gurmohan Singh et al. and Kuchbal D.S. who found hypopigmented lesions in 88% and 90% of cases respectively.

In the present study, hyperpigmented lesions was found in 14% of the patients. This was seen in accordance with the studies of Gurmohan Singh et al. and Kuchbal who reported 12% and 24% of patients with hyperpigmented.

Both the hyper and hypopigmented lesions were coexisted on the same patients in 11% of cases in this study. This was in accordance with the reports available in the literature, that the hypopigmented lesions are younger lesions and the hyper pigmented lesions are older ones but the exact figures are not available.

Conclusion

- Direct microscopic examination of skin scraping from the lesion mounted with 10% KOH showed in all the cases "Spaghetti and

meat ball" appearance of grouped and discrete spores and short broken hyphae.

- One of the main objectives of the present study was to confirm the diagnosis of clinically suspected cases of tinea versicolor by demonstrating fungal elements of *Malassezia furfur*. This was carried out in all 100 cases and the positive result of fungal elements detected.

References

1. Ashbee HR. Ingham. Holland KT. Cunliffe W.J. Cell-Mediated Immune Response To *Malassezia furfur* Serovars A,B And C In Patients With Pityriasis Versicolor, Seborrheic Dermatitis And Controll. *Experimental Dermatology*. 1994 Jun;3(3): 106-12.
2. Damle A.S. ; Fule R.P. Mycology of Cutaneous Fungal Infections In Ambajogai; A Rural Area. *Indian Journal of Dermatology And Venerology* Vol47 ; No. 51983.
3. Nagabhushanam P. Tirumalarao D.; Ragh-Unath dermatomycoses In Hyderabad Area. *Indian Journal of Dermatology And Venerology*: Vol 35. No. 3: Ay/ June 1969.
4. Surrinder Kaur. Incidence of Dermatophytosis In Chandigarh And Surrounding Areas. *Indian Journal Of Dermatology And Venerology*; July/ Aug 1970;36(4).
5. Gurmohan Singh; Gour K.N. And Dikshit Ks. Clinical Pattern of Pityriasis Versicolor. *Indian Journal of Dermatology And Venerology*, May/June 1996;32.
6. Kuchabal D.S. Clinical Pattern of Tinea Versicolor. *Journal of Scientific Society*. 1977;4(1).
7. Roberts; Sob. Pityriasis Versicolor: A Clinical And Mycological Investigation. *British Journal Of Dermatology* 1967;81:315.