

CLINICAL, EPIDEMIOLOGICAL AND MYCOLOGICAL STUDY OF TINEA-VERSICOLORRatheesh T. Pallai¹, Anu Balakrishnan², Elizabeth³, Sourabh A. P⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: BACKGROUND: Tinea versicolor is a chronic, mild, usually asymptomatic infection of the stratum corneum. The lesions are discrete or confluent and appear as discolored or hypopigmented areas of the skin. The affected areas are located principally on the chest, abdomen, upper extremities and back. The etiologic agent is the lipophilic yeast *Pityrosporum orbiculare*, part of the normal flora of the human skin. This study is undertaken to know "clinical, patterns of the disease with respect to morphology and distribution, associated conditions and epidemiological factors like age, sex distribution and seasonal variation of the disease". **METHODS:** Two hundred patients of tinea versicolor were selected. Patients belonging to the age group of above 10 years and below 60 years belonging to both sexes were selected and included in the study group after taking consent. A detailed history was taken with particular reference to onset, duration, symptoms and treatment taken and were recorded. Factors like – seasonal variation, family history and presence of any associated illnesses was also noted. A thorough clinical examination was done with reference to the location, the color, the extent of the lesions, the margins, the type of lesions and the details were recorded. Potassium hydroxide (KOH) examination and Wood's lamp examination were done in all the patients before therapy. **RESULTS:** Out of 200 patients, majority of them belong to 2nd and 3rd decade of life (72%). The Male: Female ratio was 1.5:1. There was a family history of 16%. The trunk was the most common site involved. Majority of the patients had exacerbation in summer. The most common associated dermatoses were acne vulgaris, immunosuppression and infections. **INTERPRETATION AND CONCLUSION:** Tinea versicolor is a disease of worldwide distribution, although it is significantly more common in humid and tropical climates. The true incidence cannot be estimated precisely because the disease is not troublesome and often passes unnoticed and the patients are therefore less frequently seen by a dermatologist. The lesions are discrete or confluent and appear as discolored or hypopigmented areas of the skin Although Tinea versicolor is a chronic, mild, usually asymptomatic infection of the skin it poses considerable therapeutic challenge to dermatologists in tropical countries because of its varied clinical manifestations and frequent relapses after treatment.

KEYWORDS: Pityriasis versicolor; Tinea versicolor; Malassezia furfur; Pityrosporum orbiculare

INTRODUCTION: Tinea versicolor is a chronic, mild, usually asymptomatic infection of the stratum corneum. The lesions are discrete or confluent and appear as discolored or depigmented areas of the skin. The affected areas are located principally on the chest, abdomen, upper extremities and back. The etiologic agent is the lipophilic yeast *Pityrosporum orbiculare*, part of the normal flora of the human skin.

In Scandinavia, approximately 1% of the population has been reported to be affected by tinea versicolor¹ whereas rates as high as 50% have been reported in some tropical countries. ² The

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disease affects all races and both sexes, usually between the range of 16 and 40 years of age and the disease is rare in children and in elderly people.

There is little evidence that the disease is contagious. Other factors that lead to an increased susceptibility should be considered including genetic predisposition, poor general health, cancer, use of oral contraceptives, hyperhidrosis, pregnancy and other immune compromised states. The diagnosis is based essentially on clinical examination of the skin lesions of tinea versicolor and a mycological examination. Culture is of no diagnostic significance in a case of tinea versicolor. There are a number of treatment options, home remedies, topical and systemic therapies for tinea versicolor.

Various other names have been given to this condition including pityriasis versicolor, tinea flava, Dermatomycosis Furfuracea, chromophytosis, Achromia parasitica, Hodi-potsy, Kleine-flecht, liver spots, sun fungus.

AIMS AND OBJECTIVES: To study the various clinical patterns of the disease, sites of involvement, age distribution, sex distribution, seasonal variation of the disease and also to know the conditions associated with tinea versicolor.

METHODOLOGY: Two hundred patients of tinea versicolor were selected from those attending the outpatient department of Dermatology, of Azeezia Medical College from November 2010 to October 2012.

Patients belonging to the age group of above 10 years and below 60 years belonging to both sexes were selected and included in the study group after taking consent. A detailed history with particular reference to onset, duration, symptoms, provoking factors, clothing and treatment taken were recorded.

Factors like – seasonal variation, family history and presence of any associated illnesses was also noted. A thorough clinical examination was done with reference to the location, the color, the extent of the lesions, margin of the lesions, the type of lesions and the details were recorded.

KOH examination and Wood's lamp examination were done in all the patients before therapy.

RESULTS: In the present study 41% of the patients belong to age group 21-30 years, 32% belong to age group 10-20 years, 18% in 31 to 40 years, 7.5% belong to age group 41-50 years and 1.5% belongs to age group 51-60 years.

The percentage of males (59.5%) involved was more than the females (40.5%) In the present study 32 patients (16%) had history of similar complaints in the family. [Table 1]

118 patients (59%) showed itching while the remaining 82(41%) did not. 143 patients (71.5%) had exacerbation in summer while 57(28.5%) didn't. [Table 2]

(21.5%) patients had lesions due to sweating, 16(8%) due to physical strain and 3(1.5%) due to medications like oral steroids. [Table 3]

In the present study 149(74.5%) patients used cotton clothing while 51 patients(25.5%) used synthetic clothing.

In the present study 14.5% of the patients showed recurrence of lesions and 85.5% of patients had no recurrence.

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111 patients (55%) had lesions on the chest, 61(30.5%) on the face, 38(24%) on the neck, 31(15.5%) on the back, 12(6%) on the upper arm 7(3.5%) on abdomen and 5(1.5%) on shoulder. [Table 4]

79 patients (39.5%) showed Patch's, 34 of them (17%) had macules, follicular lesions were seen in 5(2.5%) of them. Follicular lesions were seen along with macules of patch's and they constituted 72(36%) of the total number of patients. [Table 5]

15 patients (7.5%) had acne, 13 patients (6.5%) were immunosuppressed, 11 patients (5.5%) had associated infections, 7 patients (3.5%) had melasma, 5(2.5%) had associated eczemas and 4 patients (2%) had polymorphous light eruption.

All the cases studied showed a positive KOH.

45 patients (24.5%) showed fluorescent lesions while 155(77.5%) of them had non-fluorescent lesions.

DISCUSSION: AGE INCIDENCE: In the present study 41% of the patients belong to age group 21-30 years, 32% belong to age group 10-20 years, 18% in 31 to 40 years, 7.5% belong to age group 41-50 years and 1.5% belongs to age group 51-60 years.

Tschen has observed that, in most patients the disease starts during puberty or thereafter and found it to be less frequent over 50 years of age.³

Michalowski et al,⁴ have observed that tinea versicolor is uncommon before puberty possibly because of the changes in the skin sebum levels that occur at this time, although some cases have been reported in children, particularly in tropical countries; they have also observed that the incidence of tinea versicolor decreases in later life; it is less common for older adults to develop tinea versicolor, which may be related to alteration in the sebum production which tends to decrease with age. Thus the results of the present study are well in concurrence with the observations made by the above authors.

SEX: In the preset study the percentage of males(59.5%) involved was more than the females(40.5%). Maheswariamma S.⁵ has observed an higher incidence in males compared to the females. Similarly Rao et al,⁶ have observed an incidence of 73.30% in males and 26.60% in females. Thus the sex incidence in the present study is in concurrence with the observations made by above 3 authors, all of them being the studies conducted in India.

FAMILY HISTORY: In the present study 32 patients(16%) had history of similar complaints in the family. Rao et al,⁶ found a positive family history in 38.30% of patients, out of whom 10% gave history in spouses and 13.30% in parents. Whereas Tschen,³ has observed that there is little evidence that the disease is highly contagious, since only 7.5% of cases are present in the same couples living together.

Hay and Moore, have opined that, a positive family history among blood relations is found more often than chance, would suggest in tinea versicolor, but whether this is due to a genetically determined host susceptibility factor or the greater opportunity for heavy colonization by *Malassezia furfur*, is at present undetermined. Thus the various factors attributable to the existence of the disease in the family are variable.⁷

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PREDISPOSING FACTORS: In the present study 43(21.5%) patients had lesions due to sweating, 16(8%) due to physical strain and 3(1.5%) due to medications like oral steroids.

Reed,⁸ have found various predisposing factors like genetic predisposition, poor general health, cancer, pregnancy and use of corticosteroids.

Faergemann et al,⁹ have found malnutrition, use of oral contraceptives and hyperhidrosis as the predisposing factors. Hashim et al,¹⁰ and have found higher risk of development of tinea versicolor in the immunocompromised which is similar to the observations made in the present study.

CLOTHING: In the present study 149(74.5%) patients used cotton clothing while 51(25.5%) patients used synthetic clothing.

In the present study, unlike in the study mentioned below, the incidence of tinea versicolor in patients using cotton clothing was more. This could be due to the occupation pursued by these people which cause increased sweating. Another probable reason could be the fact that most of the people in the vicinity use cotton clothing.

In the study by Gatha S. Rao⁵, found one fourth of the patients to have tinea-versicolor due to use of synthetic clothing.

RECURRENCE OF LESIONS: In the present study 14.5% of the patients showed recurrence of lesions and 85.5% of patients had no recurrence.

According to the study done by Gatha S. Rao,⁵ recurrence was seen in 3.30% of the patients studied without treatment.

Thus the present observation is concurrent with the above study.

SEASONAL VARIATION: In the present study 143(71.5%) patients had exacerbation in summer while 57(28.5%) didn't. Klenk et al,¹¹ have observed that tinea versicolor is more frequently seen in humid, warm climates or in the tropics than in dry cold zones.

Assaf and Weil,¹² have observed the condition to be more common in tropical climates and as many as 40% of some populations may be affected compared with less than 1% in temperate zones.

Rao et al,⁶ have found that, in their study group, 35% of the patients observed the disease first in summer and probably increased sweating makes the person more susceptible for infection.

The results of the present study concur well with the above mentioned studies and during summer many persons wear less clothing making the lesions more visible to others and the patients may become more aware of its presence and thus comes forward for treatment.

SYMPTOMS: In the present study 118(59%) patients showed itching while the remaining 82(41%) did not. Gupta et al,¹³ opined that some patients may experience mild pruritus although in most patients, tinea versicolor is asymptomatic and chiefly a cosmetic concern. Thus the result of the present study is in accordance with the above said study.

SCALES: In the present study, 75(37.5%) patients had moderate scaling, 70(35%) patients had mild scaling and 32(16%) patients had severe scaling while 23(11.5%) patients had no scaling. Assaf and Weil¹² have found scaling in all the patients in their study and where scaling was minimal, it may be

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elicited by scraping the skin. Similarly Tschen³ found the scaling to be fine and greasy in all their patients, thus the results of the present study are in agreement with other available studies.

MARGIN: In the present study 159(79.5%) patients showed lesions with a clear margin and 41(20.5%) patients had a hazy margin. In this study the majority of the lesions had clear margins. There is no available study to compare the results of this study.

DISTRIBUTION OF LESIONS: In the present study 111(55%) patients had lesions on the chest, 61(30.5%) on the face, 38(24%) on the neck, 31(15.5%) on the back, 12(6%) on the upper arm 7(3.5%) on abdomen and 5(1.5%) on shoulder. Gupta et al,¹³ found the lesions to be more often on lipid rich areas of the body like the face, neck and the trunk.

Tschen³ in his study found, the trunk, the neck, face, arms and shoulders to be the most involved areas even though other areas including genital area may be involved. Similarly Assaf and Weil¹² found the trunk, arms, neck to be the commonly affected sites. Rao et al,⁶ found the disease in 71.6% over the neck, 70% over the back and 58.30% over the chest. Thus the distribution of the lesions in the present study is similar to the observation made by other authors.

TYPE OF LESIONS: In the present study 79(39.5%) patients showed Patch's [Diag. 1], 34(17%) of them had macules [Diag. 2], follicular lesions were seen in 5(2.5%) of them. [Diag. 3] Follicular lesions were seen along with macules and patch's and they constituted 72(36%) of the total number of patients. Rao et al,⁶ found macular lesions in 86.60% of patients, follicular in 6.60% of patients, confluent in 10% of the patients and guttate in 1.60% of patients. Assaf and Weil,¹² found patchy lesions more in their study.

In the present study macular lesions were found to be the majority of the lesions.

COLOUR OF THE LESIONS: In the present study 125(62.5%) patients had hypo pigmented lesions, 51(25.5%) had hyper pigmented lesions 24(12%) patients had both lesions. Gupta et al,¹³ have described that the lesions may be hypo pigmented(these lesions are particularly noticeable in dark skinned patients) or hyper pigmented; a single patient may have both type of lesions and the color of the hyper pigmented lesions varied from pink or tan to dark brown or black.

Similarly Tschen³ has found the coloration of the lesions ranging from hypo pigmented to dark brown. Assaf and Weil¹² have observed that lesions typically begin as reddish macules later becoming hypo pigmented and the hyperpigmentation that occurs occasionally may be due to individual differences in the inflammatory response. Thus the patients in the present study had lesions which were more of hypo pigmented variety than the hyper pigmented.

ASSOCIATED DERMATOSES: In the present study 15(7.5%) patients had acne, 13(6.5%) patients were immunosuppressed, 11(5.5%) patients had associated infections, 7(3.5%) patients had melasma, 5(2.5%) had associated eczemas and 4(2%) patients had polymorphous light eruption. In HIV patients the lesions were found to be more extensive.

Tschen³ found seborrheic dermatitis, hyperhidrosis, psoriasis and atopic dermatitis co-existing frequently with tinea versicolor. Assaf and Weil¹² have mentioned common association between tinea versicolor and seborrheic dermatitis as the two conditions, which disappear

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significantly withazole antifungals. Borrelia et al¹⁴ found and increased frequency of tinea versicolor in immunosuppression.

Rao et al,⁶ found seborrheic dermatitis in 11.60% of their patients who had tinea versicolor.

Among the patients who had acne along with tinea versicolor, most of them were teenagers, thus it was a casual co-existence, and tinea infections were found in patients who had significant hyperhidrosis. The other associated conditions were just concomitant, and bear no significance.

KOH EXAMINATION: All the cases studied showed a positive KOH.

Balwada et al,¹⁵ at the end of 8 weeks follow-up found mycological cure in 85% and 90% of patients treated with clotrimazole and ketoconazole respectively. Rao et al,⁶ in their study of 120 patients found positive KOH results in 46.6% of the patients. In the present study all cases were found to be KOH positive. [Diag.4]

WOOD'S LAMP EXAMINATION: In the present study 45(24.5%) patients showed fluorescent lesions while 155(77.5%) of them had non-fluorescent lesions.

Savin¹⁶ has found positive Wood's lamp examination in 1/3rd of patients.

Our findings of Wood's lamp examination concur well with the studies conducted by Savin.¹⁶ Woods lamp is not the confirmatory test for tinea versicolor though it can make lesions more prominent as in any other condition.

CONCLUSION: The following conclusions can be drawn after making the observations in the present study. The disease was found to be more in patients belonging to the second and third decades of life since it was more common among teenagers and young adults who are more active and this leads to increased sweating. The incidence of the disease is found to be more in men probably because of their occupation and outdoor activities.

A positive family history of 16% is because of poor hygiene and genetic susceptibility. Most of the patients were asymptomatic and came because it was a cosmetic concern. Majority of the lesions were on the chest, the face, the neck and the back. The disease showed an exacerbation especially in the summer months. Most of the lesions were patches followed by macules. Most of the lesions were hypo pigmented and had a clear margin.

Recurrence was a problem in a group of patients due to associated sweating, summer exacerbation and use of drugs like steroids. The most common associated dermatoses were acne vulgaris, immunosuppression and infections. The lesions were found to be extensive in HIV patients. KOH examination was positive in all the cases and most of the patients showed no fluorescence with woods lamp probably because they had taken bath before coming to hospital in the morning.

Although tinea versicolor is a chronic, mild, usually asymptomatic infection of the skin it poses considerable therapeutic challenge to practicing dermatologists in tropical countries because of its varied clinical manifestations and frequent relapses after treatment.

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Sex	No. of cases	Percentage
Male	119	59.5
Female	81	40.5

Table1: Sex distribution

Absent		Present	
Number	Percentage	Number	Percentage
57	28.5	143	71.5

TABLE 2: Seasonal variation

	Number	Percentage
Physical Strain	16	8
Sweating	43	21.5
Medications	3	1.5

TABLE 3: Provoking factors

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	Number	Percentage
Face	61	30.5
Chest	111	55
Back	31	15.5
Neck	38	24
Axilla	11	5.5
Abdomen	7	3.5
Shoulder	5	1.5
Upper arm	12	6

TABLE 4: Site of lesion

	Number	Percentage
Macules	34	17
Patch's	79	39.5
Follicular	5	2.5
Mixed	72	36

TABLE 5: Type of lesions

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