



A CLINICAL AND EPIDEMIOLOGICAL STUDY ON PITYRIASIS VERSICOLOR INFECTION IN JAIPUR

Dr. Richa Sharma*

Assistant Professor, Department of Microbiology, Mahatma Gandhi University of Medical Science & Technology, Jaipur *Corresponding Author

Dr. Ved Prakash Mamoria

Professor & Head, Department of Microbiology, Mahatma Gandhi University of Medical Science & Technology, Jaipur

ABSTRACT

Objective: The aim of this work to assess the prevalence of Pityriasis versicolor infection in Jaipur.

Introduction: Pityriasis versicolor disease is a chronic, superficial fungal infection of the skin caused by the lipophilic, yeast like fungus *Malassezia*. This organism is saprophytic yeast that is part of the normal skin flora. *Malassezia* (formerly known as *Pityrosporum*) is a genus of related fungi, classified as yeasts naturally found on the skin surfaces of many animals including human beings.

Materials & Methods: Skin scrapings from 90 patients with superficial lesions were collected from O.P.D at Department of Dermatology, Venerology and Leprology, S.M.S and E.S.I.C. hospital, Jaipur.

Results & Discussion: Pityriasis Versicolor was found to be the second most superficial fungal infection at Jaipur. The prevalence of pityriasis versicolor infection was found to be 44.4% out of 90 patients of pityriasis versicolor disease. In the present study, the most common species isolated from skin scrapings was *M.furfur* from 40 culture positive cases. *M.furfur* was found to be the etiological agent of pityriasis versicolor disease. In the present study, out of 40 culture positive cases of pityriasis versicolor disease, hypopigmentation was the most common colour of the lesion reported in 30 (75%) patients followed by hyperpigmentation lesions. Majority of patients were in the age group of 11 to 20 years. In the study, it was reported that, majority of patients that are infected with pityriasis versicolor infection were labours of rural areas followed by students, farmers and unemployed.

Conclusion: Based on this study it could be concluded that, Pityriasis versicolor is an important public health problem and diagnosis can be easily made on OPD basis using conventional methods.

KEYWORDS :

INTRODUCTION

Pityriasis versicolor disease is a chronic, superficial fungal infection of the skin caused by the lipophilic, yeast like fungus *Malassezia*. This organism is saprophytic yeast that is part of the normal skin flora. *Malassezia* (formerly known as *Pityrosporum*) is a genus of related fungi, classified as yeasts naturally found on the skin surfaces of many animals including human beings. Common names of Pityriasis versicolor disease are Tinea flava, Dermatomycosis furfuracea and Tinea versicolor [1]. *Malassezia furfur* is the causative agent of Pityriasis versicolor disease. High temperature, humidity, use of oils and hyperhidrosis are the main factors responsible for the occurrence of this disease. Tinea versicolor is world wide in its distribution, but is said to be more common in tropical and temperate climates. Versicolor refers to the variety in changing shades of colors present in this disease. Cutaneous infection with *Malassezia* can manifest as white, pink, fawn, or brownish well-demarcated lesions, often coalescing, and covered with thin furfuraceous scales. The organism can readily be identified by treating skin scraping with 10% potassium hydroxide (KOH) [2]. Microscopic visualization of the fungi appears as short, thick hyphae with a large number of variously sized spores (spaghetti and meatball appearance) [2]. Pityriasis versicolor occurs most commonly in adolescents and young adults, but can occur in children and infants as young as two weeks of age. Tinea versicolor also occurs commonly in patients who are immune-suppressed [3]. Poor hygienic conditions, warm and humid atmosphere and overcrowding are responsible for the growth of *Malassezia* [4].

MATERIALS AND METHODS

Collection of samples and identification

Skin scrapings from patients with superficial lesions were collected from Department of Dermatology, Venerology and Leprology, at S.M.S and E.S.I.C. hospital, Jaipur. All the samples were collected in sterilized plastic bags. The preliminary microscopic examination of the material was done immediately. For this small portions of infected skin scrapings were examined under microscope for presence of yeast cells or hyphal fragments. Following to this, additional points were also recorded like sex (male or female), age of patient, nature of infection, occupation; symptoms, climatic influence, clothing and condition of personal hygiene were recorded for para-clinical data. Remaining infected skin scrapings were then transferred in triplicates on Sabouraud's dextrose agar slants supplemented with olive oil. These cultures were maintained at 28±2°C temperature in B.O.D

incubator for further growth.

RESULTS

Pityriasis Versicolor was the second most superficial fungal infection at Jaipur. The prevalence of pityriasis versicolor infection at Jaipur was found to be 44.4%. Out of 90 patients of pityriasis versicolor disease, 60 (66.8%) patients were found to be positive by KOH examination and 40 (44.4 %) were culture positive cases. Thus the diagnosis of pityriasis versicolor infection could be established in 44.4% of the cases examined (Table 1). Colonies raised on Sabouraud's Dextrose Agar slants showed cream to brownish in colour with aging. They were smooth initially and got dried and wrinkled with time. The yeast grew rapidly and matured in 5 days at 30-37°C. Characteristic clusters of thick-walled, round, budding yeast like cells; short angular hyphal fragments were upto 8µm in diameter. These microscopic and macroscopic features and special lipid requirement in media are diagnostic characters of *Malassezia furfur*. *Malassezia furfur* is a lipophilic yeast therefore in vitro growth must be stimulated by addition of natural oil or other fatty substances. The patches may be pink, coppery brown or paler than surrounding skin. Affected areas include the back, chest neck, abdomen and upper limbs. Generally rashes of tinea versicolor do not appear on the face. In the present study, out of 40 culture positive cases of pityriasis versicolor diseases, hypopigmentation was the most common colour of the lesion reported in 30 (75%) patients followed by hyperpigmentation lesions was observed in 4 (10%) patients, so in our survey hypopigmentation was observed most frequent colour of the lesion (Table & Graph No 1). Out of 90 cases of pityriasis versicolor disease, maximum number of patients were 50 (55.6%) with a peak incidence has been noted in June to July followed by April to May (22.2%) followed by August to September (11.1%), February to March (4.4%) & October to December (2.2%) (Table & Graph No 2) In the present study, various body sites involved were chest (44.4%) followed by back (22.2%), neck (18.9%), shoulders (8.9%) and arms (5.6%). On face, abdomen and thighs no lesion of pityriasis versicolor disease was found among 90 cases of pityriasis versicolor examined (Table No 3). Maximum number of patients were found in the age groups of 11-20 years. Their number and percentage in the age groups of 11-20 years was 45 (50%) followed by 21-30 (22.2%), 31-40 (11%), 41-50 (7.8%) & 0-10 (5.6%). Majority of patients were in the age group of 11 to 20 years. The disease was found rare above 50 years of age, uncommon in children and found common in young adults. Culture positive cases

were high in males (72.5%) than females (27.5%) in the age group of 11-20 years (Table 4) (Graph 3 & 4). In the survey study, it was reported that, majority of patients 25 (62.5%) that are infected with pityriasis versicolor infection were labours of rural areas followed by 8 (20%) students, 5 (12.5%) farmers and 3 (7.5%) unemployed. The lower incidence of disease was noted in housewives 2 (5%) and service class persons 2 (5%) (Table & Graph No 5)

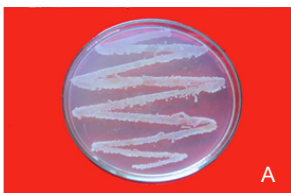
Discussion

Many species exist in this genus but in the present study, the most common species isolated from skin scrapings was *M.furfur* from 40 culture positive cases. *M.furfur* was found to be the etiological agent of pityriasis versicolor disease. The present findings match with the Sharma et al (2017) [5] who also reported the *Malassezia furfur* was main etiological agent of pityriasis versicolor disease. These patches are most noticeable during summer season. In the present study, out of 40 culture positive cases of pityriasis versicolor diseases, hypopigmentation was the most common colour of the lesion reported in 30 (75%) patients followed by hyperpigmentation. Krishnan et al (2003) also reported similar observations (84% hypopigmented, 9% hyperpigmented and 6% mixed) [6]. Rao et al (2002) also showed predominance of hypopigmented lesions [7] but our results does not corroborate with that of Alijabre et al who concluded that pityriasis versicolor does not tend to be significantly hypopigmented in dark skinned individuals [8]. This variation may be probably due to differences of climate in different study populations. Prevalence of Pityriasis versicolor greatly depends on climate with prevalence as low as 0.5% in temperate climate and as high as 50% in tropical and subtropical climates. Similar observations was done by Crespo et al, Prohic and Ozegovic [9,10]. In the study of Dutta et al most of the cases presented in the month of July to September [11] and Rao et al also reported high prevalence in the summer season [7]. Maximum number of patients were found in the age groups of 11-20 years. A similar findings was also noted by Ghosh et al in the age group of 11-20 years and 21-30 years [12]. Rao et al (2002) reported in the age group of 21 -30 years and Krishnan et al (2003) in the age group of 15-29 years [6,7]. In the present study, males were found more vulnerable to infection than females. Similar observations was noted by Rao et al (2002) and Krishnan et al (2003) they found predominance of male patients [6,7]. In male, the secretion rate remains higher longer into the 50s & 60s but in females, the secretion rate drops quickly after menopause and may be due to extra attention of women to beauty and skin hygiene. This disease was most common in young adults of age group 11-30 years due to hormonal changes, increase in sebum secretion mainly in young adults. Sebum was produced under hormonal control, the sebum secretion rare increases throughout the teens, remains steady through the 20s and 30s and then decreases with age [13,14]. Some other investigators also reported in the age group of 20-30 years [1,9]. Data particularly, assessed on the basis of professional background was not correlated to poverty conditions. But in the present findings of Pityriasis versicolor disease, mainly this infection depends on their nature of work, occupational work and age factor. This work was in agreement with Ghosh et al who also reported labours and students category more affected with this infection [12].

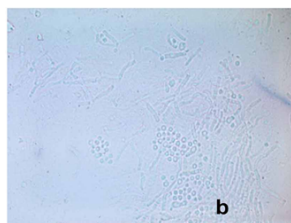
Conclusion

Our research concluded that Pityriasis versicolor is an important public health problem and diagnosis can be easily made on OPD basis using conventional methods.

Figures



A *M.furfur* growth on SDA Media with olive oil



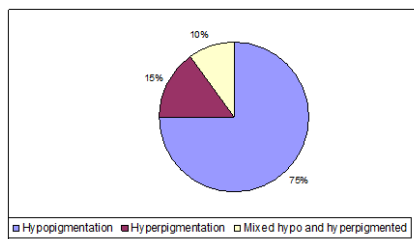
b

B Yeast cell with short hyphal fragments

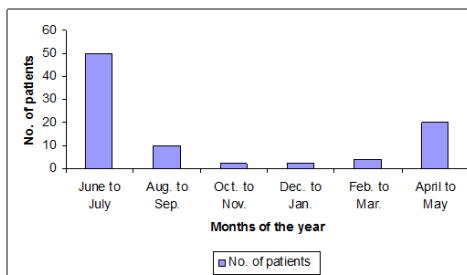


C Pityriasis Versicolor Disease on Upper neck & Chest region

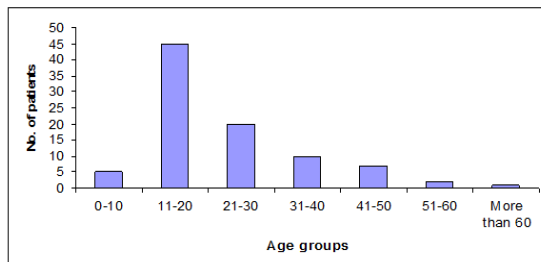
Graphs



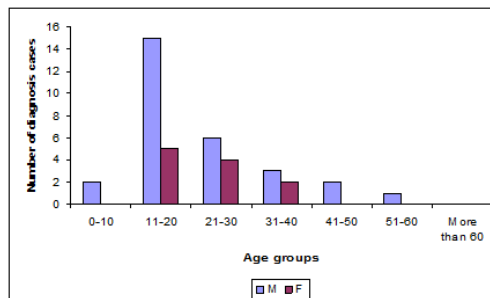
Graph-1 : Distribution of pityriasis versicolor patients according to the colour of the lesion



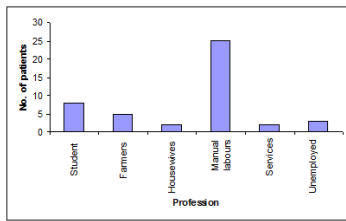
Graph-2 : Distribution of pityriasis versicolor patients according to seasonal variation



Graph 3 : Distribution of pityriasis versicolor patients according to different age group



Graph 4 : Distribution of pityriasis versicolor patients positive by culture according to different age group and gender



Graph 5 : Distribution of pityriasis versicolor patients according to profession

Tables

Table 1 Distribution of Pityriasis versicolor patients according to the colour of the lesion

Total number of Pityriasis versicolor patients	Culture Positive	Hypopigmentation %	Hyperpigmentation %	Mixed Hypopigmentation & Hyperpigmentation %
90	40 (44.4%)	30 (75%)	6 (15%)	4 (10%)

Table 2 Distribution of Pityriasis versicolor patients according to seasonal variation

Month of the Year	Number of patients	%
Dec to Jan	2	2.2%
Feb to Mar	4	4.4%
April to May	20	22.2%
June to July	50	55.6%
Aug to Sep	10	11.1%
Oct to Nov	2	2.2%
Total	90	100%

Table 3 Various body parts involved in Pityriasis versicolor infection

Sites of Infection	Number of patients	%
Face	-	-
Arms	5	5.6%
Chest	40	44.4%
Neck	17	18.9%
Back	20	22.2%
Shoulders	8	8.9%
Abdomen	-	-
Thighs	-	-
Total	90	100%

Table 4 Distribution of Pityriasis versicolor patients positive by culture according to age groups and sex

Age group	Male	%	Female	%	Total	%
0-10	2	5%	-	-	2	5%
11-20	15	37.5%	5	12.5%	20	50%
21-30	6	15%	4	10%	10	25%
31-40	3	7.5%	2	5%	5	12.5%
41-50	2	5%	-	-	2	5%
51-60	1	2.5%	-	-	1	2.5%
Total	29	72.5%	11	27.5%	40	100%

Table 5 Distribution of Pityriasis versicolor patients positive by culture according to profession

Type of Profession	Number of patients	% of patients
Students	8	20%
Farmers	5	12.5%
Housewives	2	5%
Manual Labours	25	62.5%
Service Class	2	5%
Unemployed	3	7.5%
Total	40	100%

References

- Gupta A; Bluhm R. and Summerbell R. (2002): Pityriasis versicolor. Journal of Eur Acad. Dermatol. Venerol; 16, 19-33.
- Gupta AK, Batra R, Bluhm R, Faergemann (2003) J. Pityriasis versicolor. Dermatol Clin;21:413-29.
- Aly R. and Berge T. (1996): Common superficial fungal infections in patients with AIDS. Clin Infect Dis, 22, 128-32.
- Rippon JW, (1982). The Pathogenic Fungi and the Pathogenic Actinomycetes. In: Medical Mycology. 2nd Edn, W.B. Saunders Company, Philadelphia, USA, pp. 565-594
- Sharma Y, Jain S, Chandra K, Munegowda K C. A clinico- epidemiologic evaluation of pityriasis versicolor from a government hospital, India: conventional methods-still a thumbs up. Indian Journal of Medical Science. 66 (1), 40-43.
- Krishnan A, Thapa DM. (2003) Morphological and pigmentary variations of tinea versicolor in South Indian patients. Indian J Dermatol.;48:83-6.
- Rao GS, Kuruvilla M, Kumar P, Vinod V (2002). Clinico Epidemiological studies on tinea versicolor. Indian J Dermatol Venereol Leprol;68:208-9.
- Aljabre SH, Alzayir AA, Abdulghani M, Osman OO (2001). Pigmentary changes of tinea versicolor in dark –skinned patients. Int J Dermatol.;40:273-5
- Crespo Erchiga V, Ojeda Martos A, Vera Casaeo A, Crespo Erchiga A, Sanchez Fajardo F, GuOho E, et al. (1999) Mycology of pityriasis versicolor. J Mycol Med;9:143-8.
- Prohic A, Ozeovic L. (2007) Malassezia species isolated from lesional and non-lesional skin in patients with pityriasis versicolor. Mycoses;50:58-63.
- Dutta S, Bajaj AK, Basu S, Dikshit A. Pityriasis versicolor: (2002) Socioeconomic and clinicomycological study in India. Int J Dermatol.;41:823-4
- Ghosh SK, Dey SK, Saha I, Barbhuiya JN, Ghosh A, Roy AK. (2008) Pityriasis versicolor: A clinicomycological and epidemiological study from a tertiary care hospital. Indian J Dermatol;53:182-5.
- Strauss JS, Downing DT, Ebling FJ: (1983) Sebaceous glands. In: Goldsmith LA (eds). Biochemistry and Physiology of Skin. New York: Oxford University Press, p 569-595
- Dawber R: (1997) Diseases of the Hair and Scalp. London: Blackwell Science, p 499-504