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The adhesive tape application as appropriate techniques in diagnosis of pityriasis versicolor.

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Abstract

Pityriasis versicolor is a chronic, superficial fungal infection affecting the superficial layer of a stratum corneum ,caused by the Malassezia spp, which require clinical examination as well as laboratory investigations to confirm the final diagnosis .KOH is considered the simple diagnostic laboratory technique. The aim of this study to compare between the adhesive tape application and skin scraping as appropriate techniques in diagnosis of pityriasis versicolor. from forty patients who were clinically suspected with pityriasis versicolor.

Forty patients with PV were enrolled in this study ,23(57.5%)were males and 17(42.5%) were females .Every patients was exposed to detailed disease history and clinical examination .Scraping of lesion using adhesive tape and another one by skin scraping and then both samples were examined for fungus under microscope. Also diagnosis was confirmed by wood's light examination. Analytical method was used for the collected data The cellophane tape method was positive in 37 cases out of 40 (93%) while the KOH mount was positive in 36 cases (90%).Wood's light was positive in 30 cases out of 40(75%).

Fungal elements were detected by both methods and were better visualized by the tape method. All negative cases were of hypo-pigmented type. There was no significant difference between results of both cellophane tape and routine KOH methods.

Key words :Pityriasis versicolor, Adhesive tape ,KOH examination,Malassezia,Libya

INTRODUCTION

Pityriasis versicolor (PV) is a common disorder known by various names like tinea versicolor, Dermatomycosis perforatia,Tinea flava, Liver spots or Achromia parasitica [(1)]. Pityriasis versicolor (PV), is one of the most common superficial fungal infections worldwide, particularly in tropical climates. [(2)].It caused by the genus Malassezia which includes: Malassezia globosa, Malassezia furfur, Malassezia restricta, Malassezia obtusa, Malassezia slooffiae, Malassezia sympodialis, M. yamatoensis, M.dermatis M. nana and M.japonica[(3)].It is more common in the tropics climates. Generally lesions are restricted to anatomical sites that are covered by clothing, suggesting the role of increased heat and moisture in the pathogenesis of the lesions[(2)]. An increase in humidity, temperature and carbon dioxide tension are important predisposing factors. The prevalence in colder climates is less than 1% [(4).]Pityriasis versicolor begins as hyperpigmented patches or hypo pigmented macules ,most frequently on the trunk, but sometimes on the upper arms and neck these may coalesce into large, irregular patches, and have a fine scaly appearance which can become obvious by stretching the skin (Zeliri's sign) [(5).]Rarely, may presented on unusual sites such as popliteal fossae, axillae ,genitalia, or a radiotherapy field[(6)]. Scraping the skin for microscopy is the most commonly used technique [(7)]. The samples from patients with suspected PV were obtained by scraping the patients' lesions with scalpel and adhesive tape. Direct microscopic examination of potassium hydroxide (KOH)-prepared specimens is the simplest, cheapest method used

for the diagnosis of mycotic infections of the skin., However, sometimes this method can show false positive and, more frequently, false-negative results[8]. The aim of this study to compare between the adhesive tape application and skin scraping as appropriate techniques in diagnosis of pityriasis versicolor.

PATIENTS AND METHODS

In this prospective study,40 Libyan patients attending outpatient clinic ,dermatology department, Jamhoria Hospital Benghazi –Libya with diagnosis of PV this study, during a period of 5 months (September 2017 to January 2018)were included. Patients that have received antifungal treatment were excluded. Every patient was subjected to full history taking, complete dermatological examination that include the site, size, color and type of lesion, scraping of lesions with a blunt scalpel, then 1-2 drops of 10% KOH solution were added to the collected material, covered by a cover slip and examined for fungus under microscope using low power field ×10 then high power field× 40 and another sample was collected using adhesive cellophane tape as follows; a 5cm long and 2 cm wide transparent cellophane tape was applied over the affected site, pressed firmly (to ensure adequate recovery of scales) and removed. The tape was then stucked on the surface of a glass slide after placing 1-2 drops of 10%KOH solution on its centre then examined under microscope using low power field ×10 then high power field ×40.Positive results showing hyphae and nests of spores “spaghetti and meatballs”. Statistical analysis of the data was carried out using the Statistical Package for the Social Sciences (SPSS) (version 16) software and analyzed using the t– test and Chi square test.

RESULTS

Among the total patients (40) included in our study ,37patients had confirmed the clinical diagnosis of PV .Most of the patients (57.5%)were males and (42.5%)were females.With

male to female ratio of 1:0.74. Their ages ranged from 10 to 53 years. (Mean was 27.75years , and ± SD of 12.03years). 45%of Pityriasis versicolor cases between (21-30) years of age, P value (P=0.001).Figure (1). Most of the patients were males 23 (57.5%) while female rated 17 (42.5%).With male to female ratio of 1:0.74 Figure(2) . Out of the total 40 patients 26 (65%) belonged to the urban population and 14 (35%) patients were from rural areas Table(1). Hypopigmented PV was found in 24 cases out of 40(60%) while Hyper-pigmented, was found in 11cases out of 40 (27.5%) ,Figure (3). The majority of patients were having the lesions on the trunk,35 cases out 0f 40(87.5%) followed by neck 27cases out of 40 (67.5%), then upper limbs10 cases out of 40(25%), followed by face 9 cases out of 40(22.5%), finally lower limbs 3cases out of 40(7.5%)Table(2).The duration usually runs a chronic course,47.5% of the patients had the disease varying from 1-5 years duration .This study showed that both cellophane and standard KOH methods have nearly equal results. The cellophane tape method was positive in 37 cases out of 40 (93%) ,while the skin scraping was positive in 36 cases out of 40 (90%). The wood's light were used to confirm the diagnosis which was 30 cases (75%) ,Figure (4) and were better visualized by the tape method). All negative cases were of hypopigmented and hyperpigmented types. According to associated malassezia skin diseases,.Dandruff / Seborrheic dermatitis was associated with (77.5%) of cases, where;, Alopecia Areata was associated with 47.5% of cases, Acne was associated with 32.5% of cases , and, Atopic Dermatitis was associated with 22.5% of cases This indicates that, Dandruff /Seborrhic dermatitis was the most associated one.

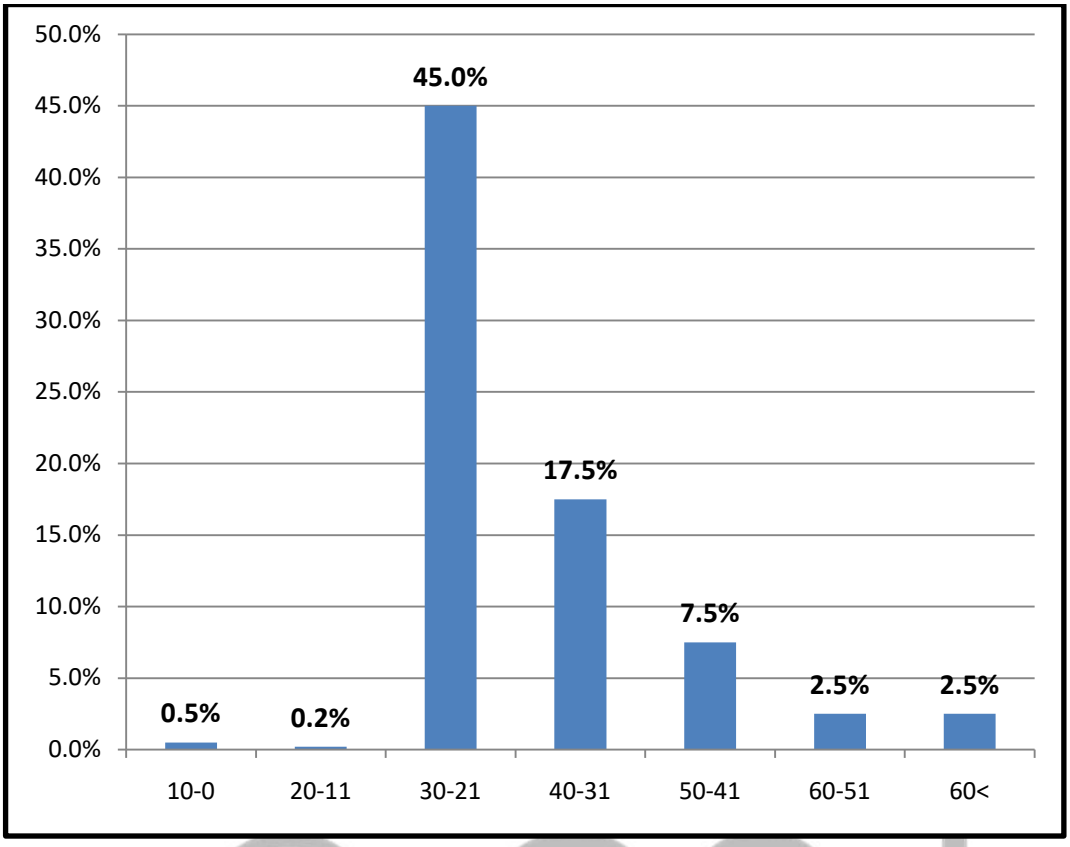

Figure (1) : Distribution of Pityriasis versicolor according to the age.

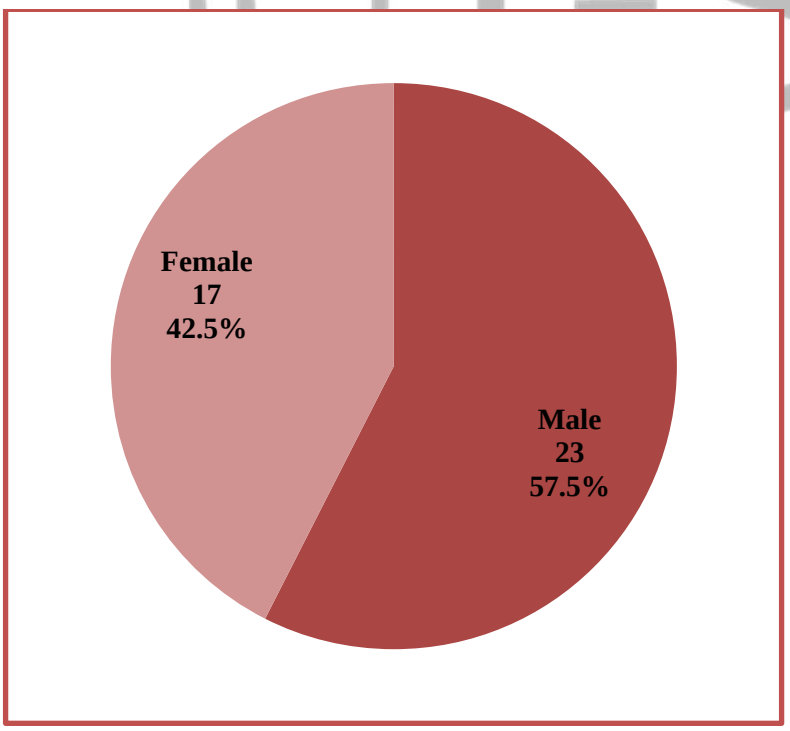

Figure (2): Distribution of Pityriasis versicolor cases according to the sex.

Residence	Male	Female	Total	%
Urban	15	11	26	65%
Rural	8	6	14	35%
Total	23	17	40	100%

Table (1):Distribution of pityriasis versicolor according to residence.

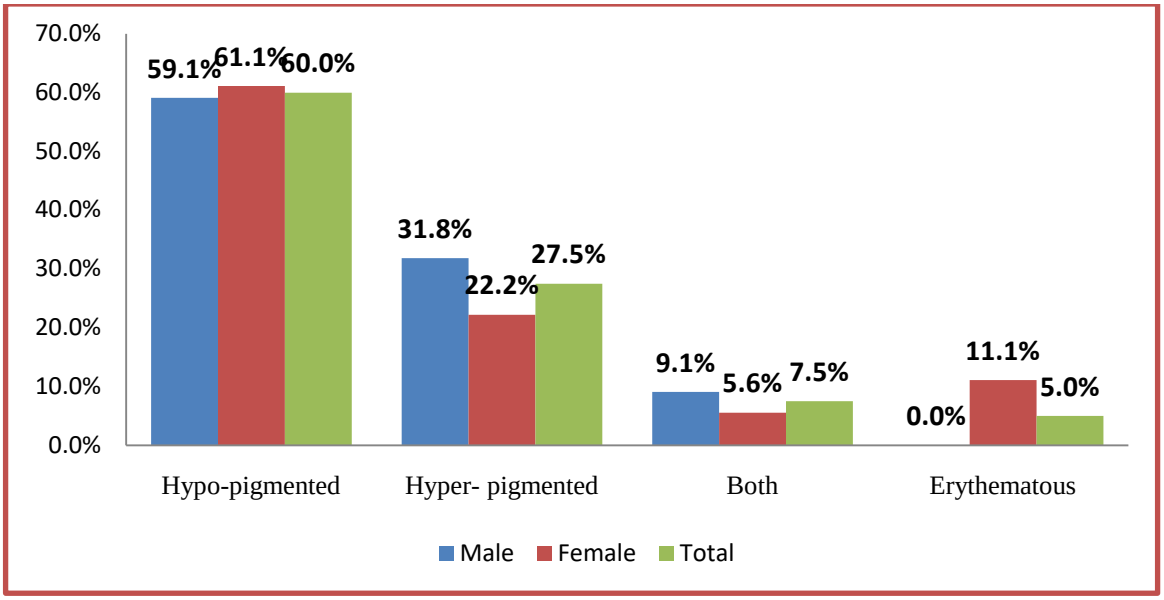

Figure (3): Distribution of pityriasis versicolor according to various pigmentary types

Site of Lesion	frequency	percent	males	Percent	Females	Percent
Face	9	22.5%	6	66.7%	3	33.3%
Neck	27	67.5%	17	63%	10	37.04%
Trunk	35	81.5%	20	57.1%	15	42.09%
Upper Limbs	10	25%	6	60%	4	40%
Lower Limbs	3	7.5%	0	0%	3	100%

Table(2):Distribution of the lesions according to the body sites

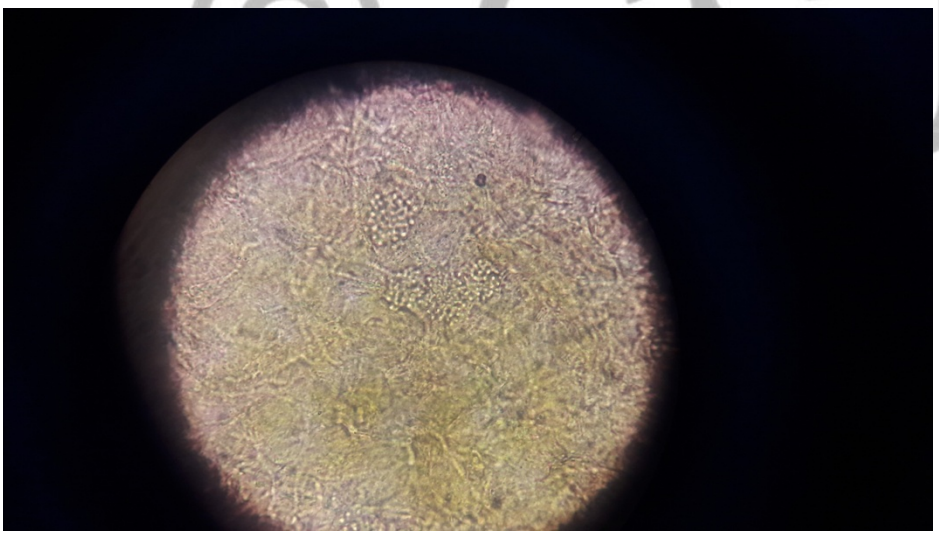

Figure (5A):KOH examination by cellophane method.(spaghetti & meats appearance).

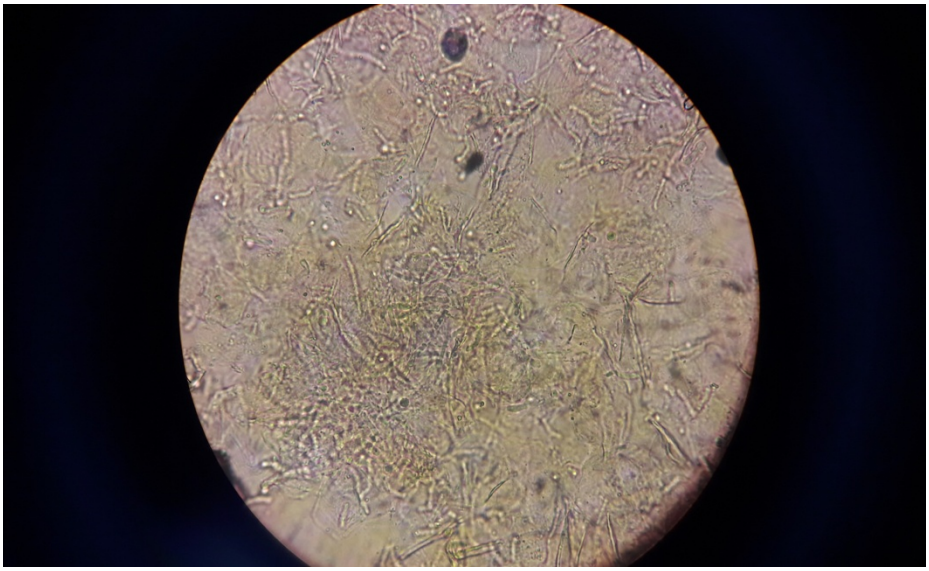

Figure (5B):KOH examination by skin scraping method.(spaghetti & meats appearance).

DISCUSSION

pityriasis versicolor can arise at any age, but most cases occurring during adolescence and young adulthood, a similar finding was also noted by Abdul-Hussein (2010)(9), Sharma(2016)(10) & Konate, et al(11). This indicating that ,the peak of the infection is coincided with ages when the sebum production is in the highest level , due to hormonal changes and increase in sebaceous gland activity and seems to correlate with increased colonization by pityrosporum with increasing age. Also, it emphasizes the higher frequency of this infection in young people due to the lipophilic characteristics of this type of fungus. The highest incidence of Pityriasis versicolor in this age group may be attributed to the maximum physical activity seen in these people which leads to excessive sweating. The infection is more common in males than females, Sex ratio male to female was 1.35:1 It matches well with the incidence reported by Ghosh et al(12) ,(M:F = 1.44:1). Some other studies reported that ,the infection was higher in females .The higher prevalence of the disease in males correlated with the higher sebaceous activity in males than in females, suggesting that the activity of hormones, especially androgens, could be

important predisposing factors of Pityriasis versicolor. The higher incidence in urban was mainly due to the location of the hospital in the city. As the health facilities are also available in rural areas, the attendance of the patients from these areas to this hospital was reduced, probably this could be the reason for the low incidence from rural areas. Another factor could be that the rural population is not bothered about the cosmetic aspect of this disease . pityriasis versicolor is thought to have a tendency to be hypo pigmented Kambil(13) noticed that, hypo-pigmented lesions were noted in (44.38%) of the patients in the study, hyper-pigmented lesion in (31.55%) and mixed type were seen in (24.06%) patients and Rao et al(14) showed predominance of hypopigmented . (lesions(75%

However, Zarei-Mahmoudabadi et al(15), found the cases had hyperpigmentation followed by hypopigmentation (36.2%) and erythematous lesions (13.8%), which stands well in contrast to the present study. The duration of PV usually runs a chronic course, these findings runs with Devendrappa, Javed (16) ,which noticed that, 44% of the patients had the disease varying from 1-5 years duration Distribution of the lesions generally parallels the density of sebaceous gland distribution, with greater occurrence on the chest and back which was in agreement with the many studies worldwide. (12&16) . Dandruff /Seborrheic dermatitis was the most associated malassezia skin diseases with pityriasis versicolor, these results supported by the previous finding in studies deal with Malassezia associated skin diseases and fungus studies in general (17&18) . About the main aim of the current study, the researcher found that, when comparison between two method occurred ,the results nearly equal by two methods of accumulation of skin scraping ,the cellophane tape method was positive in 37 cases out of 40 (93%) while the skin scraping was positive in 36 cases (90%) ,cellophane tape method was more easy, rapid more comfortable for patient easily and more visualized than skin scraping method

,these finding confirms with previous studies (11,17&18).Microscopic examination of specimens was performed following treatment with an aqueous solution of 10% potasium hydroxide (KOH). Fungal elements were detected by both methods, revealed scattered hyphae and nests of spores “spaghetti and meatballs” and were better visualized by the .(cellophane tape method. This is diagnostic point of pityriasis versicolor(17&18 Wood’s light examination may help in the diagnosis of PV however; Wood’s light provides a positive response in 30 cases out of 40(75%), these results were matching with previous studies about the importance of these laboratory investigations in the diagnosis of Pityriasis versicolor. (17&18)The negative cases in this study were hypo-pigmented lesions could be related to the category of the so called PV alba or achromia parasitica (de pigmentation after healing of lesions) particularly, they had history of recurrence . In these cases, hypo pigmentation develops following the hyper pigmented stage of PV, either spontaneously or under the influence of UV light, so, the examination of these negative cases may be done during the healing process, also it may be miss diagnostic as pityriasis versicolor (Differential diagnosis of pityriasis versicolor includes;Dry discoid eczema ,Guttate psoriasis ,Idiopathic guttate hypomelanosis, Pityriasis alba, Pityriasis rosea ,Post inflammatory hypo- or hyper-pigmentation Seborrhoeic dermatitis Tinea (corporis & Vitiligo. (1,2,5&8

CONCLUSION

The present study concludes that, morphology of fungal elements was better visualized by cellophane tape method of KOH mount. The standard technique of KOH mount is time consuming compared to cellophane tape method Cellophane tape method of KOH mount is easier and convenient for collection and transport of specimen as well.

Cellophane tape method also has an advantage of collecting good amount of sample especially when only scanty amount of sample is available.

ABBREVIATIONS

PV - Pityriasis Versicolor

KOH- Potassium Hydroxide

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