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Case Report

Groin (Inguinal) Tinea Versicolor Caused by *Malassezia furfur* in Iran: Case Report

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Abstract

Tinea versicolor (TV) is a common superficial fungal infection of the skin, characterized by scaling and mild disturbance of the skinpigmentation. It typically affects the chest, upper back, and shoulders. However, the involvement of more unusual regions of the body such as the face and scalp, arms and legs, genitalia, groin and palms and soles has been reported. This report is a case of groin TV caused by *Malassezia furfur* affecting a 25-year-old man in Iran. After sampling, direct smears with 15% Potassium hydroxide (KOH) and staining with methylene blue were prepared. In direct microscopic examination, budding yeast cells with typical scar and short curved mycelium were observed. To identifying the strains of *M. furfur*, differential tests and culture on Sabouraud dextrose agar and mDixon agar media were performed. The clinician must be aware of these variations in the location of TV and perform an appropriate diagnostic workup when lesions have the morphological characteristics of TV despite an unusual location.

Keyword: Groin, Tinea, Versicolor, *Malassezia*, *furfur*

1. Background

TV also known as as pityriasis versicolor, is a superficial fungal infection of the skin, characterized by scaling and mild disturbance of the skin pigmentation. It classically presents as round to oval macules that can be hypopigmented, hyperpigmented, or erythematous (hence the name versicolor) and typically affects the chest, upper back, and shoulders. However, the involvement of more unusual regions of the body such as the face and scalp, arms and legs, genitalia, groin, and palms and soles has been reported (1-7). This fact that *Malassezia* can also involve unusual regions of the body such as groin should be taken into account in order to appropriately differentiate between TV and other similar infections such as candidiasis and erythrasma.

2. Context

After visiting by specialist physicians, a 25-year-old man with the groin involvement from one year ago, had been referred to the medical laboratory in one of military hospital, Tehran, Iran. Clinically, lesions were macules with clear margin and slight scaling and pigmentation (Figure-1-A). During the involvement, patient had not used any antifungal drugs. After sampling with a sterile scalpel and scotch tape, direct smears with 15% Potassium hydroxide (KOH) and staining with methylene blue were prepared. In direct microscopic examination, budding yeast cells with typical scar and short curved mycelium were observed (Figure -1-B).Observed characteristics were related to *Malassezia*. For diagnosis and identification of *Malassezia* species, differential tests were performed including culture on Sabouraud dextrose agar and mDixon agar media (E. Merck, Germany), assimilation of different Tweens, catalase reaction, and splitting of esculin. By comparing the obtained results with the other study's findings (8), *M. furfur*was identified as the agent of the disease (Figure-2-A and 2-B).For patient, oral ketoconazole and ketoconazole shampoo were prescribed and recovered.

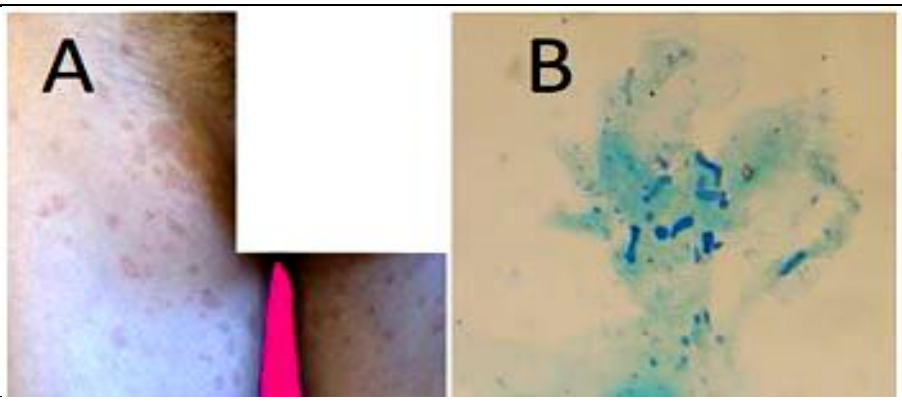

Figure1: Macroscopic and microscopic appearance of TV.
A: Clinical appearance of TV in groin location. B: Budding yeast cells with mycelium that observed in direct microscopic examination (stained by methylene blue).

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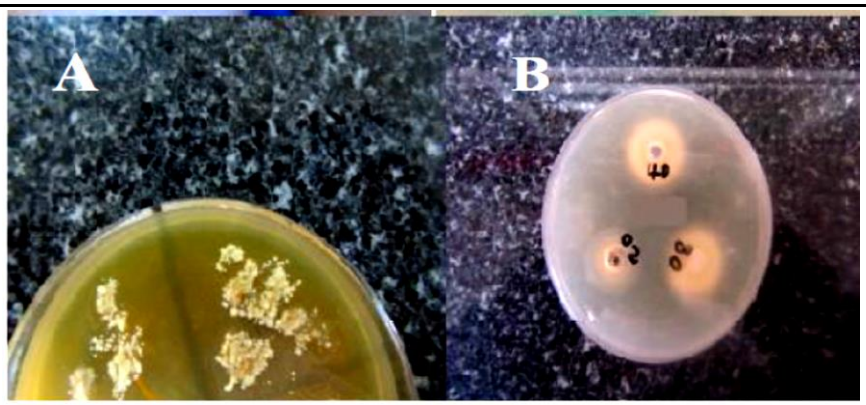

Figure 2. Culture and differential test for *Malasseza furfur*.
A: Colonies of *Malasseza furfur* grown on mDixon agar medium. B: Positive result of different Tweens assimilation (20, 40, 60) in *Malasseza furfur* (differential test).

3. Discussion

The incidence of TV varies according to the seasonal and geographical variation, but it is one of the most common superficial mycoses worldwide (8).Its prevalence rate ranges from 1% in dry climates to 50% in the tropics (4). *Malassezia* genus includes 14 species that are considered as normal flora of the skin (9).They are lipophilic yeasts and therefore colonize the regions of the body having high amounts of fatty acids. This property is seen in body areas having many sebaceous glands such as the back, chest, scalp, and forehead (10). However, the lower regions of the body with fewer sebaceous glands are less colonized or without colonization; thus, changing into the invasive form (mycelial) and the appearance of the clinical form is less. Risk factors causing the yeast to change into mycelia form and the appearance of clinical symptoms include: malnutrition, hyperhidrosis, oral preventive contraceptive drugs, immunodeficiency, corticosteroids drugs, heat, humidity, and age (because of the sebaceous gland activity at young ages under the influence of sexual hormones) (11). It seems that risk factors in this report are the age and hyperhidrosis of the groin, causing the colonization and proliferation of the yeast and the appearance of the clinical symptoms. Also, invasive characteristics of *M. furfur* could have an effective role in the involvement of this uncommon region of the body.

4. Conclusion

M. furfur can invade to uncommon regions of the body such as the groin and cause the TV. As there are fewer sebaceous glands in this region of the body, the other risk factor such as hyperhidrosis can be accounted for groin involvement. Also, it can be said that the involvement of this uncommon region of the body could be due to invasive characteristics of *M. furfur*.

Conflict of Interests

The author declares that has no conflict of interests.

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Authors' Contributions

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