White Variant of Trichophyton Violaceum Isolated in Misurata, Libya

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Abstract—Dermatophytes are geographically restricted and endemic in particular parts of the world, while other species may have a sporadic but worldwide distribution. Trichophyton violaceum is one of the most common dermatophytes causing tinea capitis, and is the predominant cause of tinea in Africa. Among 22 dermatophyte transmission from human to human (Anthropophilic fungus T. violaceum) isolates collected from school children with tinea capitis, isolate had uncharacteristic phenotypic features. Based on conventional methods in mycological center of Assiut university, this isolate was identified as white variant of T. violaceum. This is the first time that white isolate of T. violaceum have been identified in Misurata.

Keywords- dermatophytes, Anthropophilic fungus, tinea capitis, phenotypic, Trichophyton violaceum, Africa, Misurata

INTRODUCTION

Cutaneous fungal infections can be caused by dermatophytes, yeasts although dermatophytes cause most of the cutaneous fungal infections. The dermatophytes are a group of closely related fungi that have the capacity to invade the keratinized tissue (skin, hair and nails) of humans and other animals to produce an infection, dermatophytosis, commonly referred to as ringworm or Tinea, is an infection caused by dermatophyte fungi belonging to the genera Trichophyton, Microsporum and Epidermophyton. Tinea capitis is a dermatophyte infection of scalp and hair [1] [2] [3] [4]. Infections are generally restricted to the skin and they do not penetrate the deeper tissue or organs of immunocompetent hosts [5]. Trichophyton violaceum is one of the most common dermatophytes causing tinea capitis [6]. There are two main patterns of tinea capitis infection: ectothrix and endothrix infections. In ectothrix infections, fungal arthroconidia cover the outside of infected hairs, which eventually break off a few millimeters above the scalp surface, for example those caused by the anthropophilic species (eg. Microsporum audouinii) to or zoophilic (eg, Microsporum canis) or soil-associated geophilic (eg. Microsporum gypseum) dermatophytes. In endothrix infections, for example those caused by the anthropophilic species Trichophyton tonsurans. Trichophyton violaceum or, the fungus is confined to the interior of the hair shaft. Infected hairs become very fragile, breaking off level with the follicular orifice and producing black dot [7] [8].

MATERIAL AND METHODS

A total of 22 patient samples (schoolchildren), ages 7-15 years, including, hair roots and skin scrapings, analyzed by direct microscopy and culture. Microscopic examination of these specimens was carried out in KOH (10%) and cultured on SDA with, thymine and chloramphenicol, cycloheximide and Dermatophyte Test Medium (DTM). Cultures were
incubated at 25°C for up to 28 days and checked twice weekly for growth. Identification of dermatophyte isolates was on the basis of microscopic morphology \[2\] \[3\] \[6\].

RESULT AND DISCUSSION

KOH examination of hair showed endothrix parasitism [Fig.1] Reddish purple colonies were isolated from the patient on Sabouraud's dextrose agar, and intercalary chlamydospores were observed. Secondary cultures in Dermatophyte Test Medium (DTM) turned the medium red, indicating the possible presence of a dermatophyte. Therefore, the isolated fungus was identified as T. violaceum, but one isolate had uncharacteristic phenotypic features. This isolate were identified as white variant of T. violaceum. This is the first time that white isolates of T. violaceum have been identified in Misurata[Fig.2] Based on conventional methods in mycological center of Assiut university. The result is similar to that of Woldeamanuel et al [9]. Tinea capitis is mainly a disease of infants and children and its prevalence closely related to socioeconomic status and lifestyle and commonly occur under poor hygienic conditions \[10\]. In the present study children of 7-9 years old were the most affected group with 77.27% compared to 22.73% in children of 10-12 years old \[11\] \[12\]. Females were less affected showing 40.91% to 59.09% for male \[13\] \[14\] \[15\]. T. violaceum was the most common cause of tinea capitis \[11\] \[13\] \[16\] \[17\] \[18\] \[19\]. Living conditions, large family size and close contact, either directly or by sharing facilities, including combs and towels \[10\].

**Fig. 1** Positive KOH examination of hair (Endothrix).

**Fig. 2** White variant of T. violaceum white in SDA

CONCLUSION

This case represent the first time of infections caused by the white variant of T. violaceum in Misurata, Libya. The case reported here in raise assigning special importance
to its accurate identification in the laboratory.

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REFERENCES