Tinea corporis due to *Trichophyton violaceum*: A report of two cases

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Abstract

Dermatophytes are *Fungi* which infect keratinized tissues, that is, skin epidermis, hair and nails. *Trichophyton violaceum* is an anthropophilic, cosmopolitan dermatophyte. It primarily causes tinea capitis and less commonly tinea corporis and tinea unguium. We present a report of two cases of tinea corporis due to *T. violaceum* in children. Infections due to *T. violaceum* are important because of its transmissibility within families and community and its potential to spread and establish in new geographical areas.

Key words: Dermatophytes, tinea corporis, *Trichophyton violaceum*

Introduction

Dermatophytes are *Fungi* which infect keratinized tissues, that is, skin epidermis, hair and nails. They do not invade subcutaneous or deep tissues. Infections caused by dermatophytes are termed dermatophytoses, ringworm or tinea. They are classified in three genera *Epidermophyton*, *Microsporum* and *Trichophyton*.

*Trichophyton violaceum* is an anthropophilic, cosmopolitan dermatophyte. It primarily causes Tinea capitis and less commonly tinea corporis and tinea unguium. Tinea corporis is the infection of the glabrous skin. We present two cases of tinea corporis due to *T. violaceum* in children. Both presented with lesions affecting the face. Infection of the skin due to *T. violaceum* is rare and also important because of their transmissibility within families and community.

Case Reports

Case 1

A 7-year-old male child native of District Kangra presented to the Outpatient Department of Dermatology at our Institute, with chief complaints of a dry reddish lesion on his forehead for the past 15 days [Figure 1]. The lesion progressively increased to the present size of 3 cm × 3 cm and was accompanied with itching. On examination, the lesion was a circumscribed, scaly, erythematous annular plaque and had an inflammatory advancing margin. No central clearing was present. The child gave a history of similar lesions on his face for the past 1-year which came off and on and were treated with over the counter topical medications. Examination of the
scalp did not show any signs of fungal infection. No other parts of the body showed similar lesions. On further questioning, it was found that his mother had similar lesions on the face and trunk region in the past but were not present on examination.

Skin scrapings were taken from the active margin of the lesion for examination. A direct potassium hydroxide (KOH) mount revealed thin hyaline septate hyphae. Fungal culture was performed on a Sabouraud’s dextrose agar (SDA) with and without antibiotics and was incubated at 37°C and 25°C.

**Case 2**

An 11-year-old child also a native of District Kangra presented to the Outpatient Department of Dermatology at our Institute with chief complaints of a red circular lesion with itching on his left cheek for the past 11 days [Figure 2]. It was an annular erythematous lesion with inflammatory advancing margin. He had no history of similar complaints in the past. There was no involvement of scalp or other part of the body on examination. His elder brother had similar lesions on the face but was not present for examination.

Skin scrapings were taken from the lesion. A direct KOH mount revealed thin hyaline septate hyphae. Fungal culture was performed on a SDA with and without antibiotic and was incubated at 37°C and 25°C.

Culture – In case 1, SDA with and without antibiotic incubated at 25°C started showing a waxy deep purplish growth after 14 days of incubation. On further incubation, the growth became heaped up. Microscopy (Lactophenol Cotton Blue mount) revealed irregular branched hyaline hyphae without conidiation. Similar kind of growth was obtained in the sample from patient II after 12 days of incubation. Subculture on dermatophyte test medium in both isolates turned the media red after incubation for 15 days. Slide culture was performed for both these isolates on Corn Meal agar. Slide culture microscopy revealed tangled irregular hyphae and no micro or macroconidia even after prolonged incubation. Intercalary chlamydospores were present in both cases confirming a diagnosis of *T. violaceum* [Figure 3].

Treatment was initiated in both patients on account of positive KOH mount and clinical features as confirmation by culture followed. Therapy was started with oral terbinafine as it is one of the most potent antifungal agents for dermatophytoses. An age appropriate daily dose of 125 mg was prescribed to both patients for a period to 4 weeks. The therapy was supplemented with twice daily topical application of fluconazole ointment to achieve a complete microbiological cure. The patients were reviewed after 1-week and both showed clinical improvement with some clearing of lesions. On follow-up at 4 weeks after initiating treatment in both cases the lesions had cleared. Follow-up samples were taken at this time which turned to be negative on KOH mount, as well as fungal culture in both cases. It was advised to get all the

family members examined to rule out the presence of similar infection or asymptomatic carrier state.

**Discussion**

Certain species of dermatophytes are worldwide in distribution whereas others are geographically restricted. Examples of these cosmopolitan species are *Epidermophyton*
floccosum, Microsporum audouinii, T. rubrum, T. tonsurans and T. violaceum etc.[1] These cosmopolitan species are able to establish themselves in new geographical areas when carriers move from original endemic areas.[2]

Lamb and Rademaker have reported 68 isolates of T. violaceum and T. soudanense from 60 patients in Hamilton, New Zealand. Most of these patients had migrated from East Africa. Eight of them had tinea corporis due to T. violaceum.[3]

Magill et al., reported a recent increase in recovery of T. violaceum and T. soudanense from skin, hair and nail specimens from Baltimore, Maryland, USA. These dermatophytes have only sporadically been reported from US previously. They attributed this rise to increasing immigration of African born individuals to that area thus changing population demographic affecting epidemiology of this organism.[2] Another study individuals to that area thus changing population demographic only sporadically been reported from US previously. They from Baltimore, Maryland, USA. These dermatophytes have extremely rare there for decades. However, increased isolation from Finland, Europe also reports that ringworm of scalp was from children with tinea capitis was noticed. Most of them were African immigrants.[4]

In a study from Libya, T. violaceum was the most common etiological agent in tinea corporis and accounted for 44% of the total dermatophyte isolates.[5] Among literature from India Singh and Beena in a study conducted at Baroda, Gujarat have found rates of isolation of dermatophytes to be T. rubrum (73.27%), T. mentagrophytes (17.20%), E. floccosum (7.75%) and T. violaceum (1.72%). In this study, T. violaceum was the most common causative agent of tinea capitis.[6]

Bindu and Pavithran studied 150 patients with dermatophytosis from Calicut, Kerala. Most common clinical type in this study was tinea corporis. T. rubrum was the most common isolate followed by T. mentagrophytes, T. tonsurans and E. floccosum. There was no isolate of T. violaceum.[7] However, Kannan et al. reported T. violaceum as the chief isolate from scalp/hair specimens (20 out of 25) and one isolate from skin scales from Chennai, Tamil Nadu.[8]

Terbinafine has been shown to be effective in children with various dermatophyte infections of the skin, with a cure rate of more than 90%.[9] It is also shown to be well tolerated in children aged between 2 and 17 years.[9] Antifungal susceptibility test should be performed for pathogenic fungal isolated. However, facilities are not available in many laboratories across the country. The issue of patient compliance must also be addressed, otherwise failure to achieve cure may be misinterpreted as drug resistance.

Most reports of cases or outbreaks due to T. violaceum are of tinea capitis. Cases of tinea corporis are less common. Cross infection between family members occurs in cases of infection with T. violaceum. T. violaceum spreads by sharing towels or clothing. It can propagate within families from one generation to another by carriers with low-grade infection of the scalp.

Conclusion

Clinicians and microbiologists should be aware of infections caused by T. violaceum. This slow growing fungus should not be missed on fungal culture. Focus of infection in other parts of the body especially scalp should be looked for. Family members should also be examined. Adequate treatment and attempt to eradicate infection from the family will prevent re-infection.

References