ORIGINAL RESEARCH PAPER

Microbiology

KEY WORDS:

A CASE REPORT OF TINEA CAPITIS WITH ENDOTHRIX

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ABSTRACT

Tinea capitis (TC) is a fungal infection of the scalp and the surrounding skin due to keratinophilic dermatophytic fungi, notably Microsporum species and Trichophyton species.1,2 It is a predominantly dermatophyte infection that affects prepubertal children3,4 with adults being infrequently affected5. In India, the incidence rate ranges between 4 and 10%.6,7 Tinea capitis has a higher incidence in developing and underdeveloped countries owing to poverty and poor hygiene compounded with illiteracy.8,9 We report a case of an 8-year-old female child with Tinea capitis who visited Dermatology OPD of a Tertiary Care Hospital.

CASE REPORT

The patient is an 8-year-old female child who came with her mother with a history of boggy swelling on the scalp with intense itching, hair loss and a low-grade temperature.

On examination, her scalp swelling is soft and 5 cm in diameter. In addition to hair loss, the patient was evaluated for erythematous scalp lesions with yellow crust, pustule development, and annular regions. [Figure 1].

Neither the patient's mother nor any of her relatives showed a similar presentation, and she had not been in contact with any animals. All vital signs were steady with a pulse rate of 94 beats per minute, a respiratory rate of 20 breaths per minute, blood pressure 100/70 mmHg, and oxygen saturation of 98%.

Figure 1

Diagnosis And Investigations :

Samples were collected from two distinct suspicious locations following thorough washing with 70% alcohol. According to the site and condition of the lesion, the samples were collected, scrapping with a Scalpel blade of erythematous scaly lesions, pus with swab stick from the infected pustular lesions, Plucked infected hair samples to see the type of hair invasion in 20% KOH mount.

A provisional diagnosis of tinea capitis was made, and the child was referred to the microbiology Department of a Tertiary Care Hospital for the collection of broken hair, perilesional scrapings and pus samples.

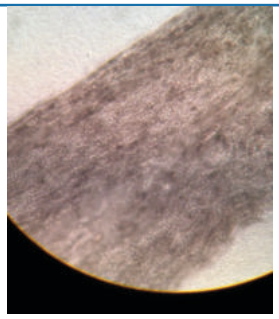

Figure 2

Mycological analysis of all suspected dermatophyte lesions was performed. Broken hair, perilesional scrapings, and pus samples were collected and examined under a light microscope with 20% KOH solution in distilled water which showed an Endothrix pattern of hair invasion, [Figure 2] with multiple spores present within the hair shaft ("bag of marbles" appearance) [Figure 3]A fungal culture was performed into Sabouraud's dextrose agar (SDA)[10] and incubated at 25 °C and examined every 2–3 days for at last 15 days. Heavy growth and discrete waxy colonies were seen showing distinctive, deep, purple-red pigmentation. Lactophenol cotton blue (LPCB) mount of *Trichophyton violaceum* showing irregular hyphae with intercalary chlamydoconidia.

We also inoculated the pus sample on bacterial culture media like blood agar and MacConkey agar and bacterial growth was identified as *Staphylococcus aureus.* As per the CLSI guideline 2023 present strain found cephoxitin resistant (methicillin-resistant *Staphylococcus aureus* - MRSA) and sensitive to clindamycin, levofloxacin, vancomycin, and linezolide.

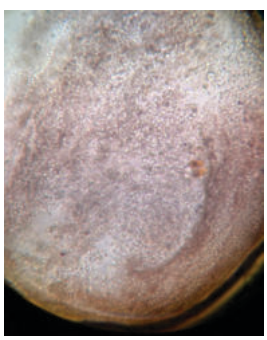

Figure 3

Patient were treated with oral griseofulvin along with a daily wash that included the application of fluconazole cream and oral linezolide.

DISCUSSIONS :

While various dermatophytes can infect the scalp, some species are more likely to invade hair The fungal pathogens responsible are T. violaceum (37.5%-88.5%), M. audouinii (34%), T. rubrum (21.8%) and T. tonsurans (0.9–12.5%), T. mentagraphytes (3%–10.6%).[11,12] M. canis is an uncommon etiological agent of tinea capitis in India, while T. violaceum is the most prevalent. The primary hosts of T. violaceum, a zoophilic dermatophyte, are dogs and cats. Humans can become infected via direct touch with cats and dogs or by coming into contact with their hair in the home.

The chronic course of tinea capitis may result in irreparable scarring alopecia and follicle damage if left untreated.[13] Particularly vulnerable to this illness are children. Sometimes, if the illness starts during puberty, spontaneous regression might happen.[14]

In children who exhibit alopecia, pruritus, chronic desquamation, and/or thinning hair, tinea capitis should be considered. A mycological examination of the scalp lesion should be conducted.[15-17]

In this case, the Dermatophyte (T. violaceum) is the major cause of the infection, and the Methicillin-resistant Staphylococcus aureus may be the secondary cause of the low-grade fever.

The drug of choice for the treatment of TC is griseofulvin in children. It is advised to treat the patient for six to twelve weeks, or until light microscopy and culture reveal no fungus. In spite of this, griseofulvin is the least expensive tablet form, has the fewest possible medication interactions, and comes in a suspension form. The most effective alternative medication to griseofulvin for treating TC is fluconazole.[18] In fact, it was discovered that the azole was just as effective in treating infections caused by T. violaceum, T. verrucosum, and M. canis in children as griseofulvin.[18]

The patient in this case report was given oral griseofulvin along with a daily wash that included the application of fluconazole cream. The duration of the treatment was three months. But we also tracked out the contact by posing questions to friends and relatives from school. No acquaintances from school or relatives suffer from the same ailment. The sickness won't spread to other people if it is identified and treated early.

In conclusion, even though we have only reported one instance of Tinea capitis caused by T. violaceum in an 8-year-old girl, this may indicate that to stop the illness from spreading, it is critical to establish a precise diagnosis, treatment, and contact tracing.

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