

# Isolation of *Microsporum gypseum* in a Case of Kerion Celsi from a Tertiary Care Center of Tripura, North-Eastern India

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## BACKGROUND

Kerion celsi is a rare inflammatory and suppurating type of tinea capitis, an infection caused by *Trichophyton* or *Microsporum* fungi that predominately affects the scalp. This infection usually involves children. It presents clinically as sharply defined, boggy painful oedematous plaques with pustules & abscesses that drain pus. It is an acute, intense inflammatory response of host, principally against the antigens of dermatophyte involved & not to secondary bacterial infection. The etiological agents of kerion celsi are- *Trichophyton verrucosum*, *Trichophyton mentagrophytes*, *Microsporum canis*, and *Microsporum gypseum*.<sup>[1]</sup> Lesions can be associated with regional lymphadenopathy. It is often misdiagnosed as bacterial infection by the physician. *Microsporum gypseum* is a geophilic dermatophytic agent and also a rare cause of tinea infection. Although a very few cases of Kerion celsi caused by *Microsporum gypseum* have been reported from south India, this is the first case reported from Tripura, North-eastern region of India.<sup>[2]</sup> Kerion celsi is a severe clinical form of tinea infection of scalp that usually involves children. Dermatophytic infection in India caused by *Microsporum gypseum* is rare. We report a case of kerion celsi caused by *Microsporum gypseum* in an otherwise healthy 6 years old girl child from a rural background of Tripura.

## PRESENTATION OF CASE

A 6 years old school going girl child from a rural background of Tripura was presented to our institute with a 1 month history of a boggy swelling over the left side of scalp with partial hair loss. She was malnourished but there was no other history of any systemic infections. On examination, she was apparently healthy with boggy erythematous nodular mass measuring around (5x6) cm over left occipital region of scalp with multiple purulent, yellowish discharge was seen (Figure 1). The mass was mildly tender, non-itchy and non-bleeding on touch. Partial alopecia was present over that lesion. There was no other similar lesion in any part of her body. No lymphadenopathy was detected. At first it was suspected to be a case of seborrheic dermatitis and a course of antibiotic was prescribed by dermatologist, but no improvement was noticed. After 7 days of treatment, she was sent to microbiology department for isolation of causative agent.

## CLINICAL DIAGNOSIS

Seborrheic dermatitis

## DIFFERENTIAL DIAGNOSIS

1. Seborrheic dermatitis.
2. Tinea capitis.
3. Pyogenic infection.
4. Haemangioma.

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### PATHOLOGICAL DISCUSSION

Sample was collected by scrapping the lesion after cleaning the site with cotton soaked with normal saline. Gram staining and bacteriological culture was done from the discharging pus. Potassium hydroxide (10% KOH) wet mount was done from the scrapped material of the mass and one part of the material was inoculated in 2 pair of Sabouraud's dextrose agar media (One pair with cycloheximide) for fungal isolation. On gram staining, plenty of pus cells were seen without any organism and bacteriological culture was also sterile after 48 hours of incubation. On KOH wet mount multiple arthrospore bearing hyaline fungal hyphae were seen. After 5 days incubation, 25°C Sabouraud's dextrose agar culture tubes showed the presence of folded surface, velvety to granular, white to pale yellow in color colony with pale yellow reverse side (Figure 2). But there was no growth at Sabouraud's dextrose agar culture tubes of 37°C. For morphological identification of the fungal pathogen in details, slide culture test was performed. After 3 days incubation of slide culture at 25°C Lacto phenol cotton blue (LPCB) mount was performed to identify the organism. LPCB mount was showing characteristic macroconidia and microconidia suggestive of *Microsporum gypseum* (Figure 3). Macroconidia were numerous in number-ellipsoidal with rounded ends with less than 6 septation, thick walled, rough surface. A few club shaped microconidia were present along the side of septate hyphae. Hair perforation test and urease test was positive for the isolated fungus.

### DISCUSSION

Tinea capitis is a dermatophyte infection involving scalp, which predominately affects hair shaft as well as contiguous scalp. Kerion celsi is caused most often by zoophilic dermatophyte. *Microsporum canis* is the most commonly associated dermatophyte.<sup>[3]</sup> Some case reports are also associated with *Trichophyton mentagrophyte* var *mentagrophyte*.<sup>[4]</sup> In our case we have isolated *Microsporum gypseum* which is a geophilic dermatophyte from a case of kerion celsi. It spreads usually from other infected members or indirectly from soil. Kerion might be mistaken for bacterial infections such as impetigo, folliculitis, & abscesses. Both conditions display similar clinical features such as inflammation, purulent discharge & hair loss. Similar to our case, there are reports of kerion misdiagnosed as bacterial infection & treated with multiple antibiotics, resulting in delayed definitive diagnosis.<sup>[4],[5],[6]</sup> If left untreated, infection can spread to other areas such as face.

It is also contagious and affect other family members. It can lead to long term morbidity such as scarring and alopecia. High index of suspicion and appropriate laboratory test is the needed to diagnose and proper treatment.

### FINAL DIAGNOSIS

Kerion celsi caused by *Microsporum gypseum*.

### DISCUSSION OF MANAGEMENT

Following the microbiological diagnosis, she was prescribed with tablet Terbinafine 250 mg once daily with 2% Ketoconazole shampoo for local application for a duration of 6 weeks. The patient improved with this treatment.



**Figure 1. Boggy Erythematous Nodular Mass Measuring around (5x6) cm over Left Occipital Region of Scalp**



**Figure 2. 25°C SDA Culture Tubes (Day 5) Showing the Presence of Folded Surface, Velvety to Granular, white to Pale Yellow in Color Colony with Pale Yellow Reverse Side**



**Figure 3. LPCB Mount Showing Characteristic Macroconidia and Microconidia Suggestive of *Microsporum gypseum***

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