Journal de Mycologie Médicale 28 (2018) 542–546

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

Case report/Cas clinique

Tinea blepharo-ciliaris in a 13-year-old girl caused by *Trichophyton benhamiae*

Fang-Ying Wang [a,b], Pei-Lun Sun [a,b,*]

[a] Department of Dermatology, Chang Gung Memorial Hospital, Linkou Branch, No. 5, Fushin St., Taoyuan, Taiwan
[b] College of Medicine, Chang Gung University, No. 259, Wenhua 1st Rd., Taoyuan, Taiwan

ARTICLE INFO

Article history:
Received 16 January 2018
Received in revised form 30 April 2018
Accepted 3 May 2018

Keywords:
Tinea blepharo-ciliaris
Trichophyton benhamiae
Trichophyton mentagrophytes species complex
Rabbits
Dermoscope

ABSTRACT

Tinea blepharo-ciliaris is a rare form of dermatophyte infection which involves eyelids and associated eyelashes. We report a 13-year-old girl with type I diabetes mellitus who had right eyelid swelling and eyelash loss for two weeks. The lesions were presented as erythematous patches with scales and tiny pustules on the right upper and lower eyelids with broken eyelashes. Two additional annular erythematous patches with scaly active borders were found on her right forearm and right thigh. Microscopic examination of broken eyelashes demonstrated many chains of arthroconidia and hyaline hyphae in an endothrix invasion pattern. Fungal cultures of right eyelid scales, eyelashes, and right thigh lesions all grew *Trichophyton benhamiae*, which was diagnosed by both morphological characters and sequencing of internal transcribed spacer region of the ribosomal DNA. The patient had a contact history with rabbits. To the best of our knowledge, this is the first case of tinea blepharo-ciliaris caused by *T. benhamiae*, and also the first formal report of infection by this fungus in Taiwan.

1. Introduction

Dermatophytosis is a common superficial skin fungal infection. Sometime the hairs on the lesion area can also be involved, such as in tinea capitis, tinea barbae, Majocchi's granuloma and some tinea incognito cases. Tinea blepharo-ciliaris is a rare form of dermatophyte infection. In which, the dermatophytes infect eyelids and associated eyelashes, resulting in eyelid swelling and break of eyelashes. There were only four case reports in the literature [1–3]. Because the symptoms and signs are similar to those of bacterial infections, a correct diagnosis may not be easy to be made at the very first time. Here we reported a 13-year-old girl who probably contracted this disease from her pet rabbits.

2. Case report

The 13-year-old female patient had a 3-year-long history of type I diabetes mellitus. The current HbA1C of 10.1% indicated a poor-controlled blood sugar. She was brought to our clinic with the chief complaint of itchy rashes and swelling of her right eyelids for two weeks. She denied stinging and foreign body sensation in the diseased eye. She raised two rabbits at home. One of them had skin disease on one limb before, but it had healed after treatment by a veterinary doctor.

On physical examination, there were two swollen erythematous patches with prominent scaling and tiny pustules on upper and lower eyelids of the right eye, which extended to inner canthus (Fig. 1a). The left eye was normal. While examining by a dermoscope, broken eyelashes and thin hairs embedded in pustules were noted (Fig. 1b). In addition to eyelid lesions, two well-defined erythematous patches with active border were found on her right forearm and right thigh. Microscopic examination of broken eyelash mounted with 20% potassium hydroxide revealed many chains of arthroconidia in an endothrix invasion pattern (Fig. 2). Broken eyelashes were collected by a pair of fine-tipped forceps, and scales from right eyelids, right forearm and right thigh patches were collected by scraping with a scalpel and sent for fungal culture separately. Sample for fungal culture of the two rabbits were collected by brushing the fur coat with a sterilized toothbrush.

Three isolates grew on cultures of broken eyelashes (strain number CGMHD 0854), right eyelid (CGMHD 0855) and right thigh lesion (CGMHD 0857). We failed to isolate fungi from right arm

* Corresponding author. Department of Dermatology, Chang Gung Memorial Hospital, Linkou Branch, Taoyuan, Taiwan. No. 5, Fushin St., 33305 Taoyuan, Taiwan.
E-mail address: sunfungus@gmail.com (P.-L. Sun).

https://doi.org/10.1016/j.mycmed.2018.05.002
1156-5233/

Fig. 1. (a) Clinical presentation demonstrated multiple erythematous patches with many scales and tiny pustules on the right upper and lower eyelids. Mild eyelid swelling was noted. (b) Dermoscopic findings revealed broken eyelashes and black dots, some of them within the pustules.

lesion and the furcoat samples of the two rabbits. The colony on potato's dextrose agar of the three isolates were the same. The surface color was creamy yellow to beige, and the texture was flat, velvety in the center and powdery at periphery. The reversed color was initially bright yellow and turned into reddish brown thereafter (Fig. 3). Microscopically, unicellular, pear-shaped microconidia were arranged alongside the straight and also vertically branched hyphae. Some spiral hyphae could be seen (Fig. 4). Sequences of internal transcribed spacer regions and 5.8S gene of ribosomal DNA (ITS) were obtained and compared with those of Westerdijk Fungal Biodiversity Institute dermatophytes database (http://www.westerdijkinstitute.nl/dermatophytes/). The sequence was 100% identical to that of *Arthroderma benhamiae* (current name *Trichophyton benhamiae*) isolates CBS 280.83 and CBS 809.72. Molecular phylogenetic analysis of isolates and members of *Trichophyton mentagrophytes* species complex was shown in Fig. 5. The sequences of three isolates were identical, and the sequence of CGMHD 0854 had been submitted to GenBank with the accession number of KY827233.

The patient received oral griseofulvin 500 mg per day treatment for four weeks, along with topical clotrimazole cream twice daily. The right eyelid and body skin lesions were all cleared. On the following-up at one month later, there was no relapse. She did not raise the rabbits anymore.

3. Discussion

The clinical presentations, pathogens, and treatment of reported cases of blepharo-ciliaris are summarized in Table 1 [1–3]. Different from previous reports in which cases were all healthy adults, our case was a girl with diabetes mellitus. Tinea blepharo-ciliaris was often initially misdiagnosed as bacterial infection due to the presence of eyelid erythema and swelling. Therefore, the patients suffered from refractory clinical courses with invalid antibiotics treatment. Eyelid scales and broken eyelashes are important clues for making differential diagnoses. Furthermore, patents may have tinea lesions on their other body sites, which is an additional clue for making a diagnosis. *Microsporum canis* [1], *M. audouinii* [2], *Trichophyton verrucosum* [2] and zoophilic strains of *Trichophyton interdigitale* [3] have been reported as the etiological agents. The case presented here is the first time that *T. benhamiae* being noted as the pathogen of tinea

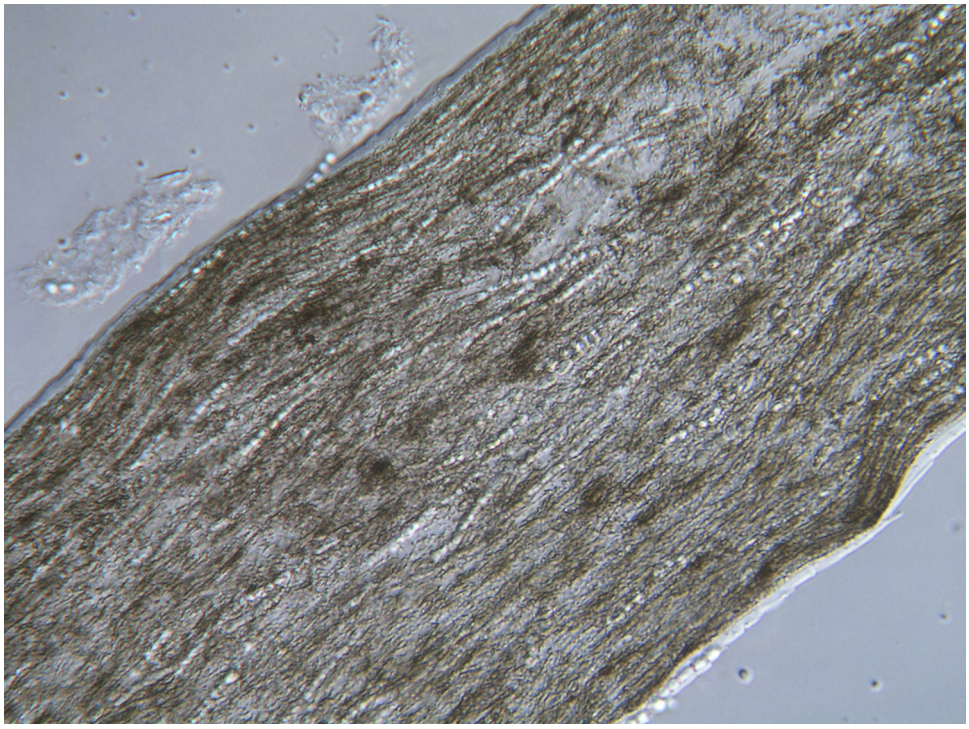

Fig. 2. KOH preparation test of the broken eyelash presented many hyphae, hyaline spores, and arthroconidia inside the eyelash shaft, revealing endothrix hair invasion.