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Tinea Faciei in a Mother and Daughter Caused by *Arthroderma benhamiae*

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Dear Editor:

Two patients presented with peripherally spreading, annular, inflammatory patches on the face for several months. The patients were a 46-year-old woman and her 8-year-old daughter. Both had contact with a rabbit with inflammatory skin lesions, but they had no other specific past medical or family history. They were diagnosed with dermatophytosis caused by *Arthroderma benhamiae* using KOH examination, fungal culture, lactophenol cotton blue stain, reverse blot hybridization assay (REBA) and DNA gene sequencing. KOH examination results were positive in both patients. Resembling *Trichophyton interdigitale*, fungal culture on potato-corn meal-Tween 80 agar showed white, granular, and downy colonies with a radiating periphery and raised center (Fig. 1). The long mycelium had numerous small, round microconidia and several macroconidia or spiral hyphae on lactophenol cotton blue stain (Fig. 2). REBA and gene sequencing using gapped BLAST and position-specific iterated-BLAST programs identified *A. benhamiae*. The program revealed 99% or 100% homology with accession number Z98016, JX413540, JX122298, JX122297, AB458188, AB458165, AB458176, AB458143, AB458145, JN134088, KC253946, AB686489, AB686487, AB686486, AB686485, AB686484, AB686483, AB686482,

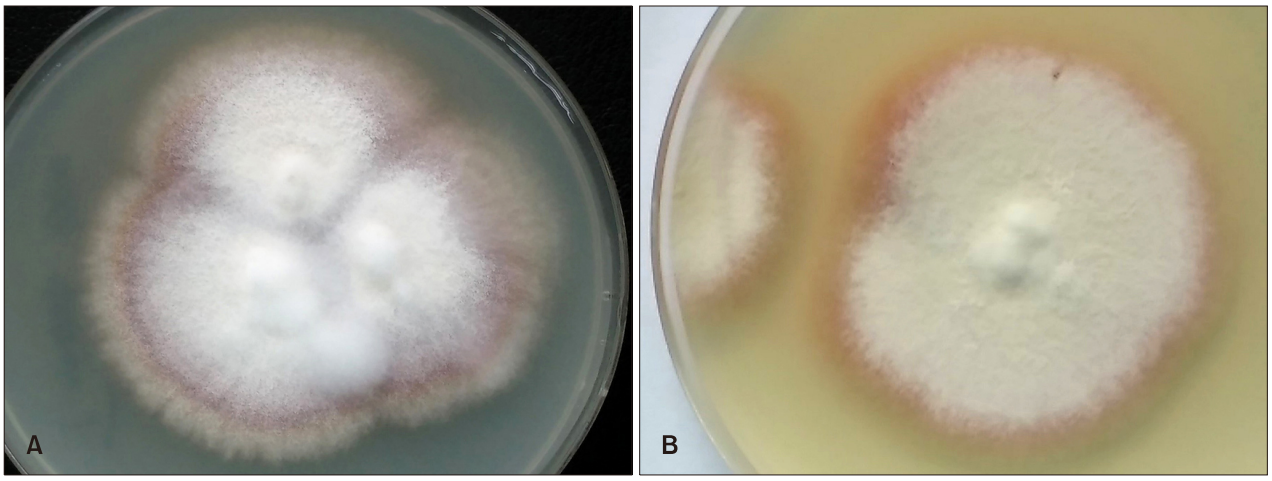

Fig. 1. (A) Peripherally radiating and centrally raised, granular and downy colonies cultured from mother and (B) her daughter.

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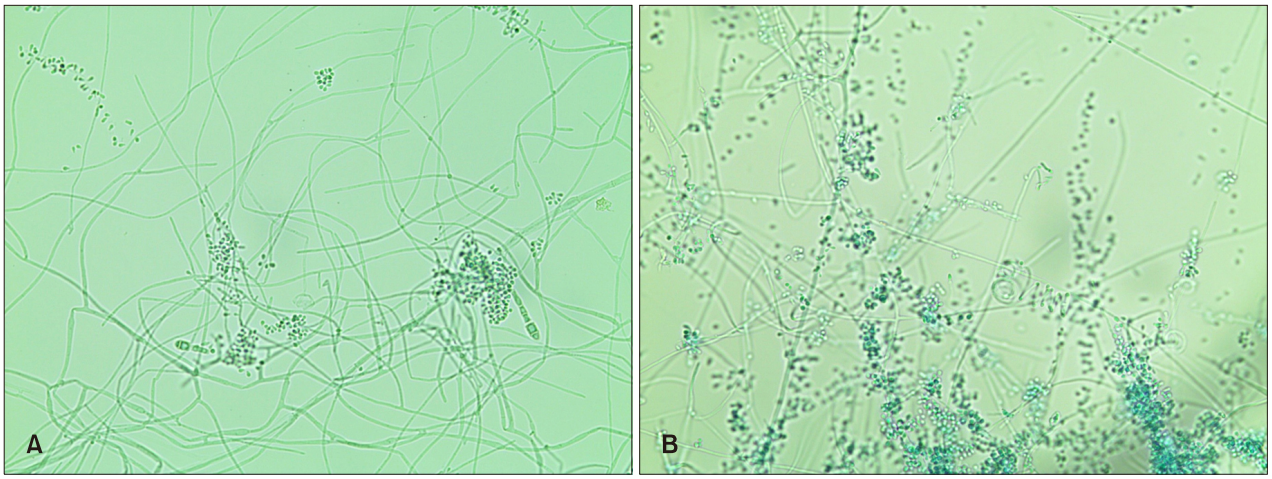

Fig. 2. (A) Septate mycelium with a great number of small round microconidia and a few macroconidia from mother. (B) Septate mycelium with a great number of small round microconidia and spiral hyphae from her daughter (A, B: lactophenol cotton blue stain, ×200).

AB686481, and AB686475. The lesions resolved with oral antifungal medication (terbinafine: 500 mg for mother and 250 mg for daughter) for 1 month.

Although molecular methods such as gene sequencing enable precise identification, *A. benhamiae* resembles *Microsporum canis* and *T. interdigitale*. *A. benhamiae* is an emerging cause of inflammatory dermatophytosis, such as tinea corporis, tinea faciei, tinea capitis, and kerion celsi. *A. benhamiae* was isolated in Japan in 1998[1]. A case with *A. benhamiae* infection was reported in Germany in 2010[2]. Jun et al.[3] published the first report of dermatophytosis caused by *A. benhamiae* in Korea, but there have been no subsequent Korean reports. *A. benhamiae* is usually transmitted from animals to humans. Guinea pigs, hamsters, rats, and rabbits are potential carriers. Conventional diagnostic methods for dermatophytosis include KOH examination and culture. *A. benhamiae* on Sabouraud agar forms radiating colonies with beige to yellow mycelium and a dense velvety surface. A smaller percentage of *A. benhamiae* cultures exhibit white granular colonies. *A. benhamiae* on lactophenol cotton blue stain shows septate mycelium with small round microconidia, grape-like microconidia, macroconidia, and/or chlamydospores. Urea hydrolysis on Christensen's urea agar and chromogenic agar have also been used for *A. benhamiae* identification[4]. Moreover, direct genetic detection using molecular methods for pathogens in specimens is useful[5]. Polymerase chain reaction-enzyme linked immunosorbent assay, sequencing of internal transcribed spacer regions of 28S rRNA genes, and matrix-assisted laser desorption/ionization time of flight mass spectrometry were recently introduced for the identification of *A. benhamiae*. We herein described two cases of tinea faciei caused by *A. benhamiae* identified with REBA and gene sequencing.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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