Review

Medical Mycology Education for Korean Dermatologists

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Superficial fungal infections are among the most prevalent medical conditions in all humans regardless of race, age, economic status, sex, or geographic origin. Most superficial fungal infections are caused by a homogeneous group of keratinophilic fungi called dermatophytes, which include *Trichophyton* (*T*), *Microsporum* (*M*), and *Epidermophyton* (*E*)¹⁾. In addition to the dermatophytes, other organisms are sometimes involved in skin infections.

Since 1959 when Suh²⁾ first reported a nationwide study of fungal diseases, many studies on the clinical and mycological aspects of superficial fungal infection have been reported in Korea. Fungal diseases account for from 9.7% to 26.3% of the outpatients in the Department of Dermatology in Chung Ang University in Seoul, Korea^{3–5)}, therefore education in medical mycology to dermatologists is very important.

The Korean Society for Medical Mycology (KSMM) was established in 1994 to share information and research on medical mycology. Since then, meetings of KSMM have been held annually in June, workshops in August, and a symposium in November. The society is now being composed of about five hundred forty members, with eighty percent dermatologists.

After December 1996, the Korean Journal of Medical Mycology, the official journal of the KSMM was published biannually, and since volume 5 in 2000, it has been published quarterly with one hundred forty copies distributed worldwide.

A separate workshop has been held for dermatologists since 1998 to educate them in medical mycology. The workshop consists of one hour lecture, two hours of practice and a discussion session. The total amount of time needed to

complete the workshop is about six hours. Participants are divided into two groups and the groups join each session alternatively. A demonstration by professors is followed by a practice session.

The First Mycology Workshop was held on 14 November 1998 at the Lotte Hotel, Seoul. Main topics for lectures and practices included identification and microscopic findings on dermatophytes. Unidentified pathogenic organisms were also identified. The lectures lasted for eighty minutes, and included an introduction and classification of dermatophytes, identification, culture and special tests of dermatophytes including KONCPA, gross and their microscopic findings (Table 1). The Second Mycology Workshop was held at the Institute of Medical Science, Catholic University, Korea on August 14, 1999, under the title, Dermatophytes Candidiasis, and *Malassezia*. The subtitles were an identification of dermatophytes, identification of *Candida* species by kit, panorama of *Pityrosporum*, direct smear of *Malassezia* species, classification of *Malassezia* species, and gross and microscopic findings of *Malassezia* species (Table 2). The Third Mycology Workshop was scheduled to be held on August 19, 2000 in the same place, but was cancelled due to a doctor's demonstration of introducing new prescribe system. The subtitles were gross and microscopic findings of dermatophytes, identification of organisms in onychomycosis by KONCPA, identification of *Candida* species by kit, and gross and microscopic findings of *Malassezia* (Table 3). Most participants in the workshop were residents in dermatology and a few were clinical pathologists.

The KONCPA (KOH+Nail clipping+PAS) test is useful in diagnosing onychomycosis because of its higher positive rate in detecting the causative fungi compared with fungus culture or KOH smear. It is also a timesaving and simple procedure. Because of its higher positive rate and simple procedure, it is useful in a case when a KOH smear and fungus culture fail to identify the causative

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Table 1.

First Mycology Workshop
Date: November 14 (Saturday), 1998
Venue: Emerald Room, Hotel Lotte
Title: Dermatophytes
Total: 5 hours
Lecture: 80 Minutes
1) Introduction and classification of dermatophytes: 20 min.
2) Identification, culture and special tests of dermatophytes including KONCPA: 30 minutes
3) Gross & microscopic findings of dermatophytes: 30 min.
Practice: 160 Minutes
1 hour practice followed by 20 minutes demonstration
Divided 2 groups
Identification of Unidentified Strains
Questions and Answers: 60 minutes

Table 2.

Second Mycology Workshop
Date: August 14 (Saturday), 1999
Venue: Institute of Medical Science, The Catholic University of Korea
Title: Dermatophytes, <i>Candida</i> and <i>Malassezia</i>
Total: 6 hours
Lecture: 90 Minutes (1)
1) Identification of dermatophytes: 15 minutes
2) Identification of <i>Candida</i> species by kit: 15 minutes
3) Panorama of <i>Pityrosporum</i> : 15 minutes
Lecture: 90 Minutes (2)
4) Direct smear of <i>Malassezia</i> species: 15 minutes
5) Classification of <i>Malassezia</i> species: 15 minutes
6) Gross and microscopic findings of <i>Malassezia</i> species: 15 minutes
Practice: 150 Minutes (Divided 2 groups)
1st group: 75 minutes
Dermatophytes: 45 minutes
<i>Candida</i> : 30 minutes
2nd group: 75 minutes
<i>Malassezia</i> : 75 minutes
Questions and Answers: 60 minutes

Table 3.

Third Mycology Workshop
Date: August 19 (Saturday), 2000
Venue: Institute of Medical Science, The Catholic University of Korea
Title: Dermatophytes, <i>Candida</i> and <i>Malassezia</i>
Total: 5 hours
Lecture: 90 Minutes
1) Gross and microscopic findings of dermatophytes: 30 minutes
2) Identification of organisms in onychomycosis by KONCPA: 20 min.
3) Identification of <i>Candida</i> species by kit: 20 minutes
4) Gross and microscopic findings of <i>Malassezia</i> : 20 minutes
Practice: 150 Minutes Divided 2 groups
1st group: 75 minutes
Dermatophytes: 75 minutes
2nd group: 75 minutes
KONCPA: 25 minutes
<i>Candida</i> : 25 minutes
<i>Malassezia</i> : 25 minutes
Questions and Answers: 60 minutes

fungi⁶⁾.

In the 1950's, the most common pathologic strain was *M. ferrugineum*, which was found in two thirds of the patients with dermatophytes infection. Other pathologic strains were *T. rubrum*, *T. mentagrophytes*, *T. interdigitale*, and *E. floccosum*. But in the 1960's, *M. ferrugineum* decreased rapidly and *T. rubrum* was commonly isolated from half of all patients. In the 1990's, *T. rubrum* was the most common pathogen of dermatophyte infection affecting 90% of all patients, others were *T. mentagrophytes*, *M. canis* etc⁷⁾. In 1995, *T. tonsurans* was newly isolated in wrestlers⁸⁾. Its clinical manifestation is somewhat like seborrheic dermatitis of the scalp. It was first described in the United States, and infected wrestlers during their games, then spread nationwide to wrestling teams. Therefore, judo players were also infected and it spread to normal healthy individuals through mattresses and family members. *T. tonsurans* is the fungal strain most recently imported from western countries to Korea.

It is increasingly important for dermatologists to understand fungal diseases and an organized educational program is required for this.

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