CASE REPORT

MADUROMYCOSIS OF THE HAND DUE TO *PHIALOPHORA JEANSELMEI*

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The term "mycetoma" was first described in 1860 by Carter to denote a fungus tumour of the foot. In 1913, Pinoy subdivided the disease into two basic etiologic types:- "actinomycosis" which is the result of infection with the Actinomyces group, and "true mycetoma" which is caused by *Fungi imperfecti* or Eumycetes group. Chalmers and Archibald (1916), Chalmers and Christopherson (1916) proposed a new term, "maduromycosis" for the group that had been previously called true mycetoma.

Mycetoma occurs commonly in arid tropical or subtropical climates.

According to Symmers (1945), cases of maduromycosis may be divided clinically into three groups. In the first group, the changes are confined to superficial structures in the form of granulomatous lesion. The second group, consists of one or more circumscribed fibrous, or occasionally cystic nodules usually without ulceration of the overlying skin. The third and perhaps the commonest variety, is characterized by the presence of multiple subcutaneous painless nodules, which may rupture spontaneously and discharge mucopurulent material containing granules.

Abbot (1956) reviewed 213 tumours from 207 cases of mycetoma at Wad Medani Hospital between January 1952 and June 1954. He found the distribution as follows:- 168 tumours were on the foot, 14 tumours were on the leg and 14 tumours were on the hand and 17 tumours were scattered on other parts of the body.

It is evident from this report that the foot seems to be the favourite site for this lesion with rare occurrence to be found on the hand.

Phialophora jeanselmei is characterized histologically by granules which are composed of yellowish to brownish spherical cells. The fungus was first reported by Jeanselme *et al.*, (1928) and described as *Torula jeanselmei* by Langeron (1928). Emmons (1945) reported a case of maduromycosis of the hand caused by *Phialophora jeanselmei* in 1945. Neilsen, Jr. *et al.*, (1968) reported the fifth case of maduromycosis due to *Phialophora jeanselmei* in 1968.

In Thailand, the first case of mycetoma was reported by Chalermkumpiravesh in 1928 but no mycological investigation was perfomed. Six additional cases of mycetoma of the foot were reported, the causative agents were *Allercheria boydii*, *Madurella*, Actinomycosis, *Nocardia brasiliensis* and *Cephalosporium falciforme*. So far the occurrence of lesions on the hand caused by *Phialophora jeanselmei* has not been reported in Thailand. Because of this fact, we believe that it will be worthwhile to report which may be the first case of mycetoma of the finger, caused by *Phialophora jeanselmei* in Thailand.

Case report

A 29-year-old Thai, housewife, resident of Dhonburi, was first seen at Siriraj Hospital, out-patient clinic on February 8, 1970 with the history of a mass on her left index finger for five years without any history of previous trauma. She stated that during that period the mass gradually increased in size, from 0.5 cm to 1.5 cm in diameter. The provisional diagnosis was made as subcutaneous cyst of undetermined aetiology. The mass was then excised but unfortunately the specimen was not subjected to histological study by the Pathology Department. A similar nodule reappeared close to the scar. This later ruptured with multiple sinus formation, draining black granules. The only symptom experienced by the patient was moderate itching. The nodule including the sinus was again excised but the patient had no thorough follow-up. She came back seven months later with three small pruritic nodules appearing along the surgical scar. Again, the nodules were totally removed, followed by immediate irrigation with 40% formalin solution. After three months of follow-up, there was no recurrence.

Physical examination on September 18, 1970 revealed a healthy middle-aged woman with three small subcutaneous nodules, size 0.5 - 1.2 cm in diameter on the left index finger along the previous surgical scar. (Fig. 1). There was no regional lymphadenopathy.

Pathology

The gross examination of skin specimen (S-13-0554) showed grayish-white shinny surface with multiple tiny black spots.

Fig. 1—Three small subcutaneous nodules along the surgical scar on left index finger.

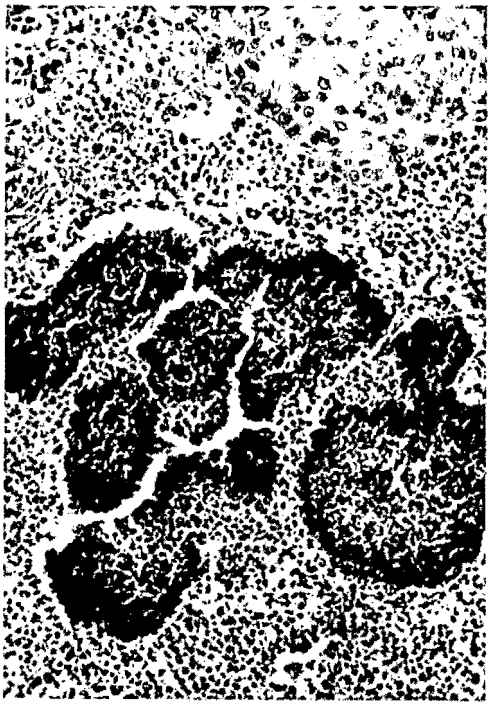

Fig. 2—Showing intradermal small abscesses surrounded by neutrophils, granulation tissue, giant cells. Haematoxylin and eosin X100.

The microscopic examination showed pseudoepitheliomatous hyperplasia and multiple intradermal small abscesses, containing small branching, septate dark-brown mycelia with ovoid or spherical cells. The abscesses were surrounded by neutrophils, foreign body type giant cells, granulation tissue and lymphocytes, plasma cells, macrophages laden with haemosiderin at periphery. (Figs. 2, 3).

Fig. 3—Showing dark brown small branching septate mycelia with ovoid cells. H & E X 450.

Mycology

The fresh KOH preparation of the biopsied specimen yielded brown granules. Cultures were made on Emmons' modification of Sabourand's agar and Sabourand's chloramphenicol agar kept at room temperature, on September 18, 1970. The fungus was seen on the surface in approximately one week, as black mold. No mucoid and yeast-like colonies were observed on the first isolation. Sub-cultures were made on Sabourand's agar and Corn-meal agar plates incubated at 25°C (the controlled environment incubator straber New Brunswick Scientific Co. Inc., New Jersey). On both media, the colonies reached the size of 20 mm in 15 days. They were dome-shaped velvety colonies and the surface was olive-gray and the reverse was olive-black, but became grey-black on the surface and jet-black on the reverse on aging (Fig. 4).

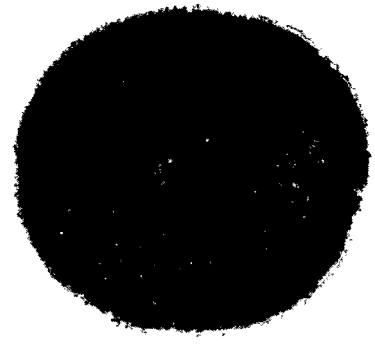

Fig. 4—Showing the surface of colony at 25°C, in 15 days.

Microscopic examination revealed light brown budding yeast cells (Fig. 5) and septate light brown mycelium with numerous pyriform to elliplical conidia, formed both on the peg-like sterigmata at the shoulder of subterminal cell and at the tips of the tapering phialides without collarettes. (Fig. 6).

To determine some cultural and physiological properties, the culture was inoculated into (1) Sabourand's agar, Corn-meal agar and Littman's oxgall agar incubated both at 25°C and 37°C (2) Sabourand's actidione agar at 25°C (3) Hypoxanthine agar and Paraffin utilizing test medium both paraffin coated rod method and Siriraj's modification method, incubated at 25°C for 30 days.

Fig. 5—Showing light brown budding yeast cells.

Fig. 6— Tapering phialides without collarettes and peg-like sterigmata at the shoulder of subterminal cell.

This fungus could not grow at 37°C and was unable to grow in actidione containing medium. It could utilize paraffin slowly but did not decompose hypoxanthine.

The characteristics of the colonies, the microscopic anatomy and some physiologic properties indicated that it was *Phialophora jeanselmei.*

DISCUSSION

Phialophora jeanselmei and *Phialophora gougerotii* are considered to be the same fungus by many authors, because of their morphologic resemblance. Our opinion agreed with others who pointed out their difference, based on clinical and some physiological properties. *P. jeanselmei* usually caused mycetomes with grains, while *P. gougerotii* caused only subcutaneous abscess of unorganized mycelium. *P. jeanselmei* could utilize paraffin slowly, but *P. gougerotii* could not.

Another point of interest noted in our strain was the absence of black yeast colonies during the early stage of growth at the first period of growth. No mucoid and yeast-like colonies were observed on the first isolation and subsequent serial subcultures. Light brown budding yeast cells observed microscopically in the filamentous colonies, were merely the conidia fallen to the substratum. These conidia increased greatly in size and gave secondary buds.

SUMMARY

A case of maduromycosis of the hand caused by *Phialophora jeanselmei* was made on the basis of the histopathological, cultural and physiological characteristic of the fungus. This is the first case reported in Thailand.

ACKNOWLEDGEMENTS

The authors wish to express sincere thanks and appreciation to Professor Vikit Viranu-

vatti, Head, Department of Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University for his encouragement and support.

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